

P.S.
Ro
610
1970-
1971



The Cover

Tapestry: *Le premier péché* (The First Sin).
From the Textile Collection of the Royal
Ontario Museum. Woven in France after a
design by the Canadian artist, Percyval
Tudor-Hart (1873-1954). Two tapestry
weavers were involved in the unique
masterpiece. The first was Léo Delmonte
who commenced working on it in 1926.
After his death in 1956, the tapestry was
completed by René Baudonnet in 1961.

Gift of Mrs. Percyval Tudor-Hart 971.148

Members of the Board, 1970-1971

Richard G. Meech, Q.C., Chairman
Roy Cole
J. H. Crang
Mrs. D. C. Early
Hon. Leslie M. Frost, Q.C.
Mrs. A. J. Grout
Mrs. W. B. Harris
John E. Langdon
Hugh Pryce-Jones
Stephen B. Roman
Clair Stewart
Mrs. Edgar J. Stone
Noah Torno
D. C. Webster
Col. D. B. Weldon
Prof. M. St. A. Woodside

Ex-officio Members

O. D. Vaughan, Chairman,
Board of Governors, University of
Toronto
Dr. Claude T. Bissell, President,
University of Toronto
Peter C. Swann, Director

Honorary Trustees

Dean A. D. Allen
Dr. Ronald Allen
W. M. Vacy Ash
Prof. M. B. Baker
Dr. L. G. Berry
Dean Vincent Bladen
Henry Borden, Q.C.
Mrs. H. A. Bruce
Mrs. W. H. Clarke
Mrs. C. L. Gundy
Dr. T. A. Heinrich
R. A. Laidlaw
Beverley Matthews, Q.C.
J. A. McDougald
N. J. McKinnon
His Excellency
Rt. Hon. Roland Michener
Dr. O. M. Solandt
Senator J. A. Sullivan
Dr. W. E. Swinton
H. M. Turner
Mrs. O. D. Vaughan
A. G. Walwyn
J. R. M. Wilson

Report of the Board of Trustees of the Royal Ontario Museum

On behalf of the Board of Trustees of The Royal Ontario Museum incorporated 1st Session, 28th Legislature, Ontario, 17 Elizabeth II, 1968, I have the honour to submit herewith the Annual Report for the period July 1, 1970, to June 30, 1971. This report will represent the 21st Annual Report of the Museum.

The year under review has been a period of challenge, growth and self-analysis for the Royal Ontario Museum as for so many cultural and educational institutions. Indeed, the very constitution of the Board of Trustees became a subject of debate early during the year when it was suggested that the Museum's curators should, by virtue of their professional status, be entitled to representation on the Board.

According to the terms of the Museum Act enacted by the Government of Ontario in 1968, responsibility for the assets and policies of the ROM is vested in a 21-member Board consisting of 15 trustees appointed by the Lieutenant Governor in Council, three trustees elected by the Museum membership and three *ex officio* members appointed by virtue of their specific positions at the University of Toronto and the ROM.

Acceptance of the curators' request would thus require an amendment of the Act, a possibility which was favourably considered by the Board. However, any recommendation along these lines was deferred pending the results of a thorough study involving every aspect of the Museum's management and control.

The Board decided to commission such a study in order to ensure the compatibility with modern management practices of the ROM organization, improve the Museum's interdepartmental lines of communication and, last not least, dispel any ambiguity with regard to the relationship between the Board of Trustees on one hand and the Director on the other.

In an institution as large and complex as the ROM, it is absolutely essential that spheres of authority and responsibility be clearly defined, and the absence of such precise guidelines became the source of growing tensions which, if allowed to continue, threatened to jeopardize the efficiency of the Museum and its service to the people of Ontario.

Therefore, after a survey of qualified consultants, the Board of Trustees selected the firm of Price Waterhouse Associates to (a) undertake an analysis of virtually every facet of the ROM's organization and operations, and (b) recommend any remedial measures which may be found necessary or advisable.

The first two volumes of what is to be a three-part report are now in the hands of the trustees and are being studied with keen interest. It is the Board's sincere hope that the Price Waterhouse report will not only go a long way toward resolving the problems encountered by the ROM, but will serve as an organizational precedent to other institutions beset by similar difficulties.

Problems notwithstanding, the ROM continues to grow in terms of the scope of its activities and facilities as well as the size of its collections. During the year under review, the Museum received \$586,175 in bequests, grants and donations, and was able to spend \$441,263 on new acquisitions. To all those individuals and organizations who made these purchases possible, the Board extends its sincere thanks.

The Department of University Affairs increased the ROM budget for the coming year from \$3,575,000 in 1970/71 to \$4,000,000 (plus additional grants totalling \$200,000) in 1971/72. Though this increase is both generous and welcome, it did fall somewhat short of the Board's expectations based on both growth and rising costs.

As for the long-term future, the Museum is grateful to the Government of Ontario for its undertaking to earmark \$12,500,000 over the next ten years for the expansion of the ROM. The Board has long felt that additional facilities

beyond the cramped confines of the present buildings are essential to the ROM's survival as a vital institution, and, therefore, commissioned an expansion feasibility study to be carried out by the architectural firm of Moffat, Moffat and Kinoshita.

This study has been completed, and the selection of a suitable site is now under negotiation. Spokesmen for the Board of Trustees and the University of Toronto are discussing the possible joint development of the McMaster site on Bloor Street West, adjacent to the Varsity Arena.

Attendance figures at the Museum continued their annual climb, from 508,569 in the first six months in 1970 to 535,710 during the corresponding period in 1971, for an increase of 27,141. Though there was a slight dip in planetarium attendance, from 150,427 in the first half of 1970 down to 133,199 in 1971, attendance at the Museum and Canadiana building shows a net gain of more than 7,000 in 1970-71.

Significantly, the ROM continues to attract distinguished visitors from both Canada and abroad:

In August, 1970, the International Art Critics Association held its first-ever Canadian meeting and was entertained for lunch at the ROM. As is often the case, some of the guests were so captivated by the museum collections that they stayed on for the afternoon, oblivious of their planned schedule.

In the fall, Dr. N. B. Millet, Curator of the Egyptian Department, was host to the American Research Centre in Egypt. Shortly after, the ROM was honoured by a visit and valuable gifts from Their Excellencies The Governor General and Mrs. Roland Michener.

The Association for the Arts of the New Jersey State Museum visited the ROM in the spring of this year as part of a Canadian tour initiated by Mrs. W. Park Armstrong, the Canadian-born wife of the United States' former Consul General in Toronto. The visitors, some 60 strong, were guided and entertained by the women's Members' Committee with the chairman cast as hostess.

In June, Mr. W. Garfield Weston attended the opening of a special exhibition featuring the beautiful 18th century English furniture presented to the Museum by The W. Garfield Weston Charitable Foundation.

Other memorable events during the past year included the opening by French Consul General Mademoiselle Campana of the Baroque Room; and the opening of the Hall of Vertebrate Evolution by Dr. W. E. Swinton, former Director of the ROM and world-renowned paleontologist.

ROM *Art '71*, a multi-media art show, introduced the public to the work of talented newcomers and provided young artists with a temporary marketplace as well as encouragement in the form of financial awards for excellence achieved in three art categories.

In the realm of social activity, *ROMarama* outdid its own record of popularity and fund-raising capacity with an attendance of 3,800, a net profit of \$5,620 and a programme ably designed to cater to a wide variety of tastes.

On a more solemn note, friends of the late Professor T. F. McIlwraith gathered in the Museum rotunda November 20th to see a large totem pole dedicated to his memory. The ceremony was designed as a fitting tribute to the head of the University of Toronto Department of Anthropology who rendered invaluable service to the ROM both as its one-time Director and through many years of association with the Museum's Department of Ethnology.

Sadly, the ROM mourns the death of other dear friends and distinguished colleagues. Moffatt St. Andrew Woodside won both the respect and affection of all his associates whether they knew him best as scholar, university administrator or museum trustee. In this last capacity he was a source of strength to the Board, and his death last September left his fellow trustees with a sense of personal bereavement.

Another grievous loss to the ROM was the death in January of Dr. Victor Meen, the Museum's Chief Mineralogist. A globe-trotter in the truest sense of the term, Dr. Meen could be described with equal validity as a leading expert on the mineralogy of the Canadian Arctic or the nature of Iran's Crown Jewels. But his many friends remember him primarily as a man of charm, courage and integrity.

The list of retirements for the past year is headed by Dr. Loris Russell, the ROM's Chief Biologist. Though Dr. Russell's expertise is far-ranging, he is probably best known for his study of lamps and lighting in early Canada, as recorded in his book "A Heritage of Light." In recognition of his outstanding service to the ROM, the Board of Trustees decided to bestow on Dr. Russell the title of Curator Emeritus.

Also retiring this year is Miss Ella Martin, Senior Lecturer in the ROM's Education Department; and Miss N. Priverts, departmental secretary in the Textiles Department.

On the credit side of the ledger, Mr. Stephen Roman was appointed to the Board of Trustees last October.

The Museum's many scholars continued their steady record of distinguished research work, with the support in some instances of grants from other institutions. To quote three examples: Dr. R. L. Peterson, Curator of the Mammalogy Department, received a \$20,000 grant from the Awards Committee of the Department of University Affairs; the Canada Council awarded \$15,000 to Harold Burnham, Curator of the Textiles Department, toward the publication

of his book on early Canadian textiles to be entitled "Keep Me Warm One Night;" and an award of \$1,400 went to Dr. David Barr, Assistant Curator of the Entomology Department, from the Canadian National Sportsmen's Show.

An impressive output of ROM publications over the past year constitutes convincing proof of the vital contribution the Museum makes in the field of scholarly literature and an indication of even greater potential given the necessary support.

This year, more than ever, the Chairman's report would be incomplete without a special word of thanks to the Members' Committee. The work performed by this group of dedicated women, be it in the field of organizing special events, acting as museum guides or playing host to distinguished guests, has been consistently outstanding, and the Museum is truly indebted to committee chairman Mrs. Robert Hill and to her successor in office, Mrs. Harold Turner, as well as to every single committee member.

Finally, in relinquishing my position as Chairman of the Board, I should like to thank the Minister of University Affairs, my fellow trustees, the Museum Director and Curators, along with all other members of the ROM staff for their support during my term of office. As the first chairman of the ROM following its establishment as an independent entity apart from the University of Toronto, I have had the privilege of serving the Museum during a period of world-wide revival of interest in the cultural, scientific and educational values for which the ROM has always stood. It has been a highly stimulating experience, never lacking in the satisfaction and challenge of a job well worth doing. In extending my best wishes to my successor, I should like to assure both him and the Minister of my continued interest, support and devotion to the ROM.

R. G. Mecch

Report of the Director of the Royal Ontario Museum July 1970–June 1971

Within a rapidly changing and sometimes turbulent society the reasons for and functions of a museum require constant reassessment. Throughout the world society is calling on such organisations to play an ever larger, more active role. Governments, in response to this demand, are beginning to contribute handsomely to their revival – conscious that they are a prime cultural resource and that their needs are beyond the means of the private benefactor who was once their main source of support.

For almost 60 years the Royal Ontario Museum has held a proud place in Canadian life and has always been expected to show a positive lead in both the sciences and arts. The Departmental reports show the diversity and activity of our scholarly staff.

Once again, as in so many years past, we must report a most serious lack of space and intolerable working conditions within the building. It is most depressing to see so many millions of dollars spent on new projects, desirable though they may be, while the Museum which has served so many for so long and which continues to attract such great crowds of visitors is not yet launched on the expansion it so desperately needs. We are increasingly concerned for our cultural resources – for, to quote what has become a hackneyed phrase, “The Quality of Life.” Where can we now establish some priority which will enable the ROM over the next few years to fulfill its potential, realize its dreams and help give our society the cultural background it needs?

Nevertheless, we are grateful that the Department of University Affairs of the Province of Ontario Government has continued to increase its operating grant to the Museum and to support the accelerated tempo of its activities. The Committee on University Affairs has encouraged and urged us to think progressively and on a broad imaginative scale. In addition, it granted 12½ million dollars towards a building

programme to be spent over the next ten years. Thus, the Provincial Government has given us a start. It is now up to the Federal Government and the people to provide more impetus.

This most welcome recognition of our long-term capital needs followed last year’s grant for an expansion feasibility study. The investigation was most conscientiously carried out by the firm of Moffat, Moffat and Kinoshita. The Board of Trustees has been studying this report since December 1970 and the Museum awaits with great expectation the next step – the appointment of a firm of architects to carry the plans for expansion one stage further.

According to the findings of this highly detailed study, the government grant will not be adequate and therefore the help of many individuals and corporations will be needed if this great organisation, after 40 years, is at last able to expand its facilities, show more of its collections and fulfill its potential.

Any viable expansion will also depend upon the co-operation of the University of Toronto which, through the Liaison Committee, is showing a friendly and helpful spirit. Conditions within the Museum have now become unbearably overcrowded and the lack of temperature control causes severe damage to precious objects and acute discomfort to visitors and staff alike. Surely few such treasure-houses of man’s artistic and scientific heritage are denied the means properly to care for their prized possessions. This condition is aggravated by the inadequacy of our electricity supply to which no further load can be added without major expense. The Provincial Government is aware of our difficulties and for this we are grateful, but the time for positive action is already some 20 years overdue. In this respect it is encouraging to see that at last the Federal Government recognises the part which museums across the land should play and appears willing to help them expand their services to the country. Following a number of conferences and consultations held this year with the Secretary of State, we await his decisions in the Fall. We welcome the growing realisation that the Museum is no longer a preserve to be enjoyed by the

few as it was in the 19th century but that it lies at the heart of what has come to be known as our “life style.”

Yet we have problems beyond the realm of finance. They lie primarily in the field of communication which must serve a complexity of inter-disciplinary interests long considered independent. Difficulties spring from a combination of psychological, social and economic causes which we should be given the means to help resolve. In an age when slickness and shoddiness seem to be the norms the Museum must at all times maintain its high standards of quality, but this does not at all mean that it should be dull, lifeless and unimaginative. A balance must be maintained. It is non-violent, creative and educational in the widest and best sense of the word. It serves all age groups and the whole of society. It is above all a very human place, a meeting place for young and old alike.

Some of our efforts in 1971-72 will be devoted to the exploration of ways and means for a fuller, more organised service for all levels of our demanding society. Increased leisure time may for many be an illusion but, if it comes, we must be prepared to offer ever-widening fields to the many who seek serious outlets for their interests and energies. Somehow we must make it possible for more and more of our people to participate. In anticipation of taking a larger part in adult education the Museum has prepared a plan for this area of service and has established a new section under the title Visitor Development Service.

The Museum has fortunately continued to attract the generosity of many benefactors both private and corporate and we like to think that this is the result of our obviously increased activity in the service of the whole community. Outstanding among these gifts and mentioned briefly in last year’s *Report* was that of Sam and Ayala Zacks of a large collection of antiquities, the result of a lifetime of loving collecting, together with a financial contribution of \$250,000 towards the long-awaited new building programme. Such generosity is rare and

only surpassed by that of Col. Sam McLaughlin. We mourn the passing of Sam Zacks who, with his wife Ayala, for many years provided an artistic leadership to Toronto.

Another eminent Canadian, Mr. Garfield Weston, through his Foundation, continued his benefactions to the Museum with a major gift of English furniture and he generously attended the opening of a special exhibition of his treasures. The International Nickel Company of Canada Limited, a good friend indeed, maintained its interest in the Mineralogy collections by enabling us to purchase and keep in Canada the Froberg Collection of minerals – one of the finest in private hands. The Canadian National Sportsmen's Show continued to support our science departments and it is encouraging to note from their current report for 1971 that, over the last 23 years, they have contributed no less than \$46,893 to our research programmes. The T. Eaton Company and the Royal Bank have handsomely repaid services we have rendered.

The Donner Canadian Foundation, having launched the Museology Programme, continued its imaginative assistance by backing the first year of the new Visitor Development Service mentioned above. The Metropolitan Toronto Board made an increased grant towards the embellishment of the outside of the Museum – a landmark and a centre of activity in the heart of this lively city. The National Research Council gives its support to our scientific endeavours as does also the grant section of the Department of University Affairs. Since we are now separated from the University some sources of research funds are unavailable to us, a sad situation by which Canada suffers. A major source of funds for extra activities, especially of our world-wide archaeological work, is the Canada Council which has also helped with exhibitions and publications. The Ivey Foundation of London, Ontario has also been most generous. The Quetico Foundation helps the Geology Department. All these agencies spur our efforts and make

possible many projects. We are grateful to them as we are to all supporters large and small, to the small trade union branch, as well as to the great foundation.

The School Boards have continued to help with welcome grants towards the school education programme and by seconding teachers to us – a plan we suggested to them four years ago and which has worked extremely well. During the year we have worked closely with the North York Board of Education in developing replicas of artifacts as teaching aids.

The Director is most mindful of the continued support, especially in these somewhat difficult economic times, of members of the Group of One Hundred and others who contribute to the Purchase Trust Fund. This started in March 1967 and has now reached approximately \$450,000 towards his target of \$1,000,000 in ten years. As the Departmental reports record, the interest from this fund has already made possible many purchases which would otherwise have been totally beyond our reach since the purchase funds for this great Museum are still depressingly inadequate. He is particularly grateful to those Trustees who have supported the Fund.

A museum of the national and international reputation of the ROM should have an annual purchasing power of at least \$1,000,000. Even to keep desirable Canadiana in this country would easily absorb one quarter of this sum. It has, in fact, little more than one-tenth of that figure to share between its 23 departments – a sad comment on the priorities of our affluent society.

Each year brings some personal sorrows and we mourn the death of Trustee Professor Moffat Woodside whose knowledge of and dedication to both the Museum and the University of Toronto were of constant value. The Director, in particular, remembers Professor Woodside with particular affection for it was he who, nearly 20 years ago, visited him in Oxford and privately expressed the hope that he would one day take a position in the ROM. Professor Woodside was frequently able to represent the academic view to the Board and was

most valuable on the Liaison Committee between University and Museum. Also during the year we lost, through premature death, Dr. Victor B. Meen, Chief Mineralogist. He bore a long illness with a fortitude and a cheerfulness before which the few he allowed to know of it could only be humble. He had served the Museum for 35 years with international distinction and during his last years greatly enriched our gem collection.

In the fullness of time senior members of staff reach retirement age. Thus Dr. Loris Russell, Chief Biologist, and Miss Ella Martin our outstanding Museum educationalist, both retired. Yet, fortunately, neither will be lost to the Museum for they will be continuing their contribution to our life in less arduous capacities. We are indebted to them both for long years of dedication to the ROM and we are happy to think that their experience and guidance is not lost to us. The Director wishes to express his personal thanks to them both for their professional and personal support.

The budget for 1971-72 totals \$4,200,000 of which a proportion has been earmarked for the renewal of the Museumobile programme and for gallery renovations. Also, with the encouragement of the Department of University Affairs, the Museum will, in the fall, open six nights per week until 9 p.m. and, in so doing, one of the Director's hopes will be realised. It is only right that our collections should be available at hours when most people can enjoy them. Together with the new restaurants and Members Lounge, made possible by the generosity of Col. Sam MacLaughlin and the Provincial Government and the Life Member's Fund, we hope that the pattern of museum going will slowly expand. Realistic as our budget submission always is, the outcome fell short of projected needs by \$680,000. Thus, with inflationary pressures and general increases of all kinds, the museum never seems quite able to make "the great leap forward" it needs.

Attendance last year was 1,266,648 – a slight decrease on last year but, considering the glittering counter attractions now

available in the city and the discomfort of the Museum building in summer it is most satisfactory – especially compared with 1967-68 when attendance was 836,257. It will be interesting to see what effect evening opening will have on attendance figures. Experience elsewhere shows that it takes some time before the general public becomes aware of the change. Bringing the new hours to the attention of the public will be a challenge to our publicity skills.

A city like Toronto, which is made up of people from so many backgrounds, needs special stimuli to make them welcome

and to encourage their interest and participation. We feel it can play a large part in the integration of our diverse population. A most successful Hungarian Gala Evening was a really splendid occasion carried out with a style and verve characteristic of this proud and energetic section of our community. The decision to hold the Flower and Garden Show in the Museum was a bold initiative on the part of both the organisers and the Museum. In a hectic few days and with the help of our skilled workmen, the

Museum was transformed into a show-place of *Gardens Through the Ages*. About 40,000 people visited the show – perhaps too many for comfort in the restricted area available. The organisers in return made a valued contribution to our funds. So, too, did the firm of Olivetti under the Presidency of Mr.

The Flower and Garden Show transformed the Armour Court and Exhibition Hall, to delight some 40,000 visitors.



Lanfranco Amato. It organised a memorable evening for the showing before an invited audience of their artistic film production "Kyoto."

Through the atmosphere of its galleries and the efficiency of its staff, the Museum has become such a popular venue for special occasions that it has become important to remember its true functions. Yet occasions like *Romarama*, organised for the third year by our energetic Members' Committee under Mrs. R. D. Hill, have developed into annual events in the Toronto year and give a lighter touch to our more serious activities. *Romarama* attracted 3,500 visitors for a stimulating evening both in the galleries and behind the scenes. The Members also organized ROM Art '71, a lively outside exhibition and sale of students' art work. This Committee of keen and intelligent women is playing an ever larger role in the life of the Museum and, invidious though it is to select for particular praise any one of their activities, the guided tours they give are models of careful preparation and skilful delivery. We are grateful also to the many Volunteers who backed them up by carrying out such useful tasks such as manning the Information Desk.

On the subject of volunteers, it is fitting to mention the select group of Research Associates who, as the reader will see from the various Departmental reports, add great strength to the academic staff and often enrich the collections, especially those of the science departments.

Publications continue to run at a high level and enhance our reputation abroad but, given the necessary finance, much more could be done. The ROM can and should produce learned works which might not otherwise appear, as well as publications of general interest.

Pollution problems continue increasingly to cause anxiety and the Museum receives frequent requests to make exhibitions on the subject and to take

a public stand. However, behind the scenes our scientists have for decades been gathering research material on the subject and this will prove of great value. As a small contribution to the fight against pollution of the air, most Museum waste is now baled and no longer burned.

It is now three years since the Museum became independent of the University administration and problems of the division of responsibility and communication between the Trustees and the Director have arisen much as once they did in universities. To solve these the Trustees commissioned a detailed study from the well-known firm of Management Consultants, Price Waterhouse Associates. Their task was objectively to investigate the Director's position, the Financial Management of the Museum and, perhaps most important, to establish "Guidelines" whereby the Museum may be more efficiently organized and respective functions appreciated. This is an expensive operation and one which taxes an already overworked staff but, if the outcome establishes a more effective, harmonious operation, it will have been well worthwhile. And this not only for the ROM, but also for many other museums and cultural organisations across the continent which at this time have come to face similar problems.

Work on the renovation of long outmoded galleries continued apace. The most notable accomplishment was the redesign of half of the Vertebrate Paleontology galleries opened with inimitable style and humour by Dr. W. E. Swinton, former Director. The old galleries have long been among the favourites – especially for children – and judging by a party for 2,000 children given in the new installation, the new galleries will be an equal attraction. Design and construction work continues in the Far Eastern, Textile and other areas but progress is inevitably slow. The Display General Department is greatly overworked.

The Saturday Morning Club remains as popular with this generation of Toronto children as it has been with generations past. As with many of our school classes, we like to think that youngsters react to the challenge of live involvement in an

inexhaustible world of knowledge. One would like to see the club expanded when conditions permit. What a wonderful opportunity these children enjoy!

Within the Museum, the professional staff has played a larger part in the running of its affairs than ever before. As in a university or any other democratic organisation, this is as it should be. The Director is very grateful to Senior members for advice and initiatives which have come from the various councils and committees which he established for this purpose. Junior members have also been very forthcoming and helpful in the contributions they have made to planning for our future.

The ROM is unique on this continent in its coverage within one building of both the arts and sciences and it is rewarding to see a growing spirit of unity and co-operation between the two major areas. Communication is always difficult in an organisation as complex as the ROM and the Director has established a number of working committees and is entertained to lunch each week in a separate department where everybody can enjoy a free exchange of views. From some of these he emerges well-fed – from some a little battered.

Mr. Richard G. Meech crowned eleven years of service on the Board when, in 1968, the Government appointed him as first Chairman of the newly independent Board. After a three-year term of office, and not wishing to set a precedent, he retired in June 1971 as Chairman but remains on the Board. The Museum is cognisant of Mr. Meech's long interest in its affairs and for the help and generous contributions he has made both of silver, of which he is a renowned collector, and of money for many projects. This year, through the Heritage Foundation, he presented a magnificent silver candelabra to the European Department.



Chairmanship of the Board of Trustees of an organization as varied and energetic as the ROM carries a heavy responsibility – as it does for every conscientious Trustee. In thanking him, we wish his successor a happy and fruitful term of office within an harmonious atmosphere.

We congratulate the Honorable John White, new Minister of University Affairs, on his appointment and are most happy to see the close interest he is showing in Museum affairs. It is fitting that the Museum which we like to think of, among many other things, as a "University of the People" should come under his aegis.

Funds from the Department of Education enabled us to take on a number of students for summer work. Unfortunately, the Federal Government did not see fit to include the Museum in the Opportunities for Youth programme.

We should have liked to give many more young people experience in the field and in the Museum.

The Director had the distinction of being asked to give one of the two keynote speeches to the Secretary of State's *Consultation I*, held in Ottawa to establish a policy for museums as part of the formation of a Cultural Policy for Canada. He opened a number of exhibitions, wrote articles, gave many public addresses and attended the mid-summer meetings of professional museum associations both in Canada and the U.S.A. Due to pressure of work and the difficulty of trans-Atlantic communication, after 16 years he retired as Editor of *Oriental Art*.

1970-71 was a particularly busy year and he would like to express his appreciation not only to the academic staff but also in particular to all the administrative and design personnel and to our fine craftsmen who have served with unflagging dedication. 1972 will mark the Museum's Diamond Jubilee – 60 years of service to Toronto, Ontario and Canada. We hope to make it a memorable year. What a magnificent gesture of recognition it would be if the first sod could be turned for its expansion!

Administration

P. C. Swann, *Director*

J. H. Harvey, *Secretary-Treasurer*

Victor Roberts, *Financial Administrator*

J. A. Robertson, *Accountant*

Miss L. M. Roe, *Accounting Assistant*

Mrs. M. Haliburton, *Accounts Payable*

Miss M. Fuchenko, *Cashier*

Miss J. Lim, *Payroll*

Mrs. I. L. M. Allen, *Personnel Supervisor*

J. R. Smith, *Purchasing Agent*

A. G. Jennings, *Messenger*

Registration

Miss Dorothea Hecken, *Registrar*

Miss Marjorie Shook, *Assistant Registrar*

Mrs. Faith Stanley, *Customs*

Sales and Information Desks

Mrs. H. D. Downie, *Manager*

Mrs. P. Dowton, *Supervisor*

Carpenters

Donald Sinclair, *Head Carpenter*

A. Russell, *Assistant Head Carpenter*

Laboratory of Analytical Systematics

A. Troicki, *Supervisor*

Miss E. Fink, *Technician*

Preparators

Ivan Lindsay, *Chief Preparator*

F. Howell, *Assistant Chief Preparator*

Alan Lawrence, *Building Superintendent*

Brian Smith, *Assistant Building Superintendent*

Office of the Chief Archaeologist

Dr. A. D. Tushingham,
Chief Archaeologist
Dr. W. A. Kenyon, *Associate Curator*
Dr. D. M. Pendergast, *Associate Curator*

Dr. A. D. Tushingham began last year's report by announcing an agreement with Trent University through which we would initiate a joint excavation in Mexico beginning in January 1971. When a Field Director could be found, this would be followed by an expedition to Peru. Unforeseen circumstances forced us to modify these plans but not to cancel either of the projects. The expedition to the Mexico territory of Quintana Roo under Dr. Peter Harrison was postponed for one year, to January 1972. The appointment of Kent C. Day as Field Director of the Peruvian project enabled us to complete plans to enter the field there in July of 1971. Interest in both projects among students across the country runs high and we have had many applications to join the ROM teams. By the time this report is published perhaps a half dozen students will be employed with prospects for more openings as the expeditions build up. One wishes that there were more opportunities to engage young people in this stimulating and productive work.

Dr. and Mrs. David Pendergast once more spent the first six months of 1971 in British Honduras. However, this visit was not to expand the excavations but rather to take up quarters in the new national capital of Belmopan and work on the extensive material recovered from their years at Altun Ha. During the winter and spring of 1971-72, in Toronto, the remainder of the research and the preparation of the manuscript, figures, plates and tables will be finished and made ready for the printer. The Pendergasts will then be in a position to undertake another major British Honduras venture in Maya archaeology. In fact, the site is already chosen. One wishes for it a success as striking as that at Altun Ha which has done much for archaeology and also for the Canadian reputation.

In the British Virgin Islands, Research Associate Dr. Daniel A. Nelson carried out another season of underwater research. His "Virginquest '70" served as a testing-ground for many new tech-

P. Storck, *Assistant Curator*
Miss M. Clavir, *Research Assistant*
K. C. Day, *Research Associate*
Selwyn Dewdney, *Research Associate*
Professor M. Gough, *Research Associate*
P. Harrison, *Research Associate*
K. R. Macpherson, *Research Associate*

niques of exploration and recording which were introduced (and sometimes invented) by our brilliant collaborator, Roger Hutchins of Huntec Corporation in May, 1971. Dr. Nelson published, unfortunately only in a very limited edition, a description and evaluation of these. Of greater popular interest is an hour-long documentary film in colour produced by the Canadian Broadcasting Corporation. In this, the saga of the wreck of the British frigate H.M.S. *Astrea*, lost on the Anegada reefs in 1808, links the results of modern underwater research with the Admiralty records of the courtmartial which followed the loss of the ship.

The excavations at Godin Tepe in Iran, under the direction of Dr. T. Cuyler Young Jr., continued in 1971. Dr. Young provides a fuller description of results in the West Asian Department section (see page 29). His department also participated financially in the Institute of Persian Studies project at the site of Ghubeyra near Kerman in southeastern Iran.

During the summer of 1970, Dr. Michael Gough completed his excavation and recording of the Byzantine monastery at Alahan in southern Turkey. To the architectural complex uncovered in earlier years were added a bath-house, a cool-room for storage and, at the base of the hill near the road, a late Roman early Byzantine storehouse which presumably was an adjunct of the monastery. During the summer Dr. Gough and his team were once more in Turkey preparing their finds for publication.

Mr. Francis Pryor initiated last summer an excavation in a new part of the world. To provide archaeological evidence which could complement our fine, but unfortunately unexhibited European Bronze-Iron age collections, the Museum wished to participate in excavations of that period. Arrangements could not be made in time for such work in the summer of 1970 so the Museum collaborated with a British expedition under Mr. Wade-Martins, excavating the Anglo-Saxon site of North Elmham in Norfolk. One direct result was a small exhibition on *Anglo-Saxon England* held in the Museum in May 1971. Fortunately, negotiations have now been completed, and Mr. Pryor is hard at work directing

Dr. D. A. Nelson, *Research Associate*
J. R. Turnbull, *Research Associate*
Claus Breede, *Scientific Illustrator*
George Pawlick, *Senior Technician*
Mrs. J. Hosek, *Junior Technician*
M. A. Lee, *Junior Technician*
F. Pryor, *Junior Technician*

the first Canadian archaeological expedition to England, in the Fengate area near Peterborough. We feel this to be, in its way, a notable 'first' and are anxious to see it do Canada and the ROM credit.

Meanwhile, in Canada we were not idle. Dr. Walter Kenyon returned to Fort Albany, the scene of earlier work in 1961, 1963 and 1965, to solve some of the problems which remained. This involved making test soundings below the floor of the Fort excavated in previous seasons. He found traces of an earlier construction which may well belong to the fortified house built between 1675 and 1679. This spring Dr. Kenyon investigated sites in Quetico Park and a particularly interesting – perhaps 3000-year old – site in the Rainy River country now submerged by the higher water levels. Mr. Peter Storck, our expert in archaic and palaeo-Indian cultures, carried out a long survey of raised beach-lines in the Killarney Park district north of Georgian Bay seeking traces of early man's passage. Unfortunately, he did not meet with success. Subsequently, he transferred his attention during June to the Niagara escarpment which may well produce the evidence he is seeking.

We have been most fortunate, thanks to a Canada Council grant, over the past eight or nine months, to have Mr. Selwyn Dewdney as a researcher on the Museum staff to complete his drawings of the pictographs he has already visited and to bring together in an orderly system all the data he and others have assembled on rock art in Canada. He expects to be in the field again during the summer of 1971 tracking down still more of these enigmatic relics of a past for which no date can confidently be assigned. The dating problem is one to which he has now turned his attention. We hope that, utilizing the skills and special knowledge of a large number of researchers into the rates of lichen growth or rock deteriora-

tion, together with the effects of water, heat, cold, frost and sunlight on the pigments, he may finally discover a clue or clues to solve it. Certainly, if he does, many students around the world will be greatly indebted to his tenacity of purpose.

In the summer of 1970, Mr. Donald Webster, Curator of Canadiana, carried out excavations on a 19th century pottery site near Charlottetown, P.E.I. The data now assembled by this department on the production of pottery wares in old Upper and Lower Canada provide precise evidence for dating and identifying many wares – a welcome new touchstone for scholar and amateur collector alike. During the summer, Mr. Webster led another expedition to excavate an early manor house.

Finally, last summer our divers in Ontario waters, represented by ACCWA (Archaeological Council for Canadian Waterways), carried out several interesting but rather small-scale operations on wrecks in the Great Lakes. They have already made plans for more concerted effort during the summer of 1971.

For most of the field projects listed above, the Museum published preliminary scholarly (but certainly not pedantic) reports in our popular monthly *Archaeological Newsletters*. These continue to receive a warm reception from a growing group of interested professional and amateur archaeologists around the world. Although modest in format, they have become one of the Museum's most widely-read publications.

Occasional Papers have appeared over Pendergast's and Dewdney's names, keeping up the pace of more scholarly publishing. Members of the staff have also shared responsibility for Museum lecture programmes, for the Museology courses, and for radio and tv shows or, through cross-appointments to the

University of Toronto, have contributed in various ways to the teaching of students. Unfortunately space and the money to refurbish galleries dealing, for example, with Canadian Indian archaeology, and with Mexico or Peru have been lacking. The staff of this office looks forward eagerly to the time when this may be possible and many fine collections can be made available to the public. How wearisome it is, year after year, to report the same inadequacies of space and finance. The public is the loser.

Members of our archaeological staff do not confine themselves to work within the Museum or even to their own excavation projects. Dr. Kenyon gave a series of lectures to students at Trent University during the spring semester; he has also shared responsibility with Dr. Cyril Smith of the Massachusetts Institute of Technology for a special exhibition on the subject of Iron to be presented in the Museum in August 1971. He and Mr. Storck have been frequently consulted by the Provincial Government – particularly by the Department of Lands and Forests. They, too, took the lead in correspondence with the Minister of Education and University Affairs to discourage the despoilation of Indian sites by school classes undertaking "field research projects." Their efforts received the full support of the Minister and the school authorities at all levels. Dr. Kenyon was a formal delegate to the Tenth Canadian Conference on Historical Resources held in Winnipeg in October and so participated in the collaborative process by which the federal and provincial governments set policy in this important field.

We congratulate Dr. Tushingham who, as Chairman of the Toronto Historic Board, received a Medal of Service from the City of Toronto for his contribution to the life of the city. Also, as a consequence of his co-authorship with the late Dr. V. B. Meen of the volume, *The Crown Jewels of Iran*, he was invited to be a guest of the Governor General and Mrs. Michener at Rideau Hall at a formal state dinner in honour of Her Imperial Majesty, the Empress of Iran. In February 1971, he toured eight cities in California, New Mexico and Texas lecturing on behalf of the Archaeological Institute of America.

In Toronto, the local chapter of the Institute sponsored seven monthly lectures by outstanding archaeologists. Our new president, Mr. R. W. Finlayson, has brought enthusiasm and energy to the group and membership is growing. The Museum has been happy to support this work by making available the Planetarium lecture room for meetings.

The desperate need for space remains. We have no room to house more staff, although the demand for their services, particularly in Canadian archaeology, is felt more pressingly every day. The very prosperity which also finances the thoroughways, high-rise apartments or sprawling suburbs, the gas and oil pipelines, the dams and other great works which disturb the surface of our soil and destroy unknown numbers of Indian and Eskimo sites makes archaeology a necessity rather than a frill. Virtually no salvage work is being done to save what might, even at the last minute, be preserved. But even salvage of this kind is a poor substitute for a concerted programme of investigation of archaeological sites (not to speak of unexplored and unrecorded ecological situations in which geologists, mammalogists, ichthyologists and many other scholars of our staff and of other institutions would be interested). In the U.S.A. and Britain, careful planning of constructional projects years in advance enables scientists to carry out their researches well ahead of the bulldozers. In some instances it even persuades the builders to deviate slightly from their planned course. Whole teams of archaeologists work in river valley surveys or ahead of the pipe-line builders, recording their finds and at least rescuing from the inevitable march of our cities and our technological apparatus more than is possible with last minute salvage projects carried out as the trucks already churn up the sites. Inexplicably Canada has almost no provision for such research, and the ROM has no place to put the scholars who would do the work even if the agencies responsible for these projects informed us ahead of time of their intentions and gave us permission to precede them. This is a sad failing for which generations to come will hold us responsible.

Canadiana Department

D. B. Webster, Jr., *Curator*

Mrs. Helen Ignatieff, *Curatorial Assistant*

Mrs. Mary Allodi,

Research Assistant (P/T)

Miss C. J. Holmes, *Research Assistant*

Miss N. J. Willson, *Technician 1*

Donald Webster, Curator, reports that the Canadiana Department during 1970/71 experienced both exhilaration and frustration in a most active year. The long-awaited move of the Ontario Archives, which has occupied somewhat more than half of the Sigmund Samuel Canadiana-Archives building since 1948, gave us hope that Canadiana might, in the fall of 1971, occupy the full first three floors. We therefore planned the addition of two new galleries, to make a total of four and gave two new offices. No more, we hoped, would the Department be forced to occupy the central boiler room and work in an archaeology room formed by a partition wall across the present south gallery, a furniture and large object storeroom which one can only enter after lengthy plotting of route and escape by complex rescue operations. We hoped even to provide a picture framing and matting area. Unfortunately, the cost of taking over the whole building appears to be too high for our budget.

The frustrations are by now familiar – incredibly over-crowded storage conditions which we had forlornly hoped might be approaching an end and, of course, above all, lack of adequate acquisition resources. To be sure, we have enjoyed an unprecedented year for additions to the collections. Through the Director's Purchase Trust Fund, the Laidlaw Foundation, and the Members Committee, the Department has expanded more than in previous years. The Museum has build up what is in fact a *national* collection of Canadian antiquities. It is growing fast and, small as our resources are, we are still probably better

financed for this important aspect of saving our cultural heritage than any other museum department or branch in the country.

However, as elsewhere, the prices of *top quality* Canadian antiques have been rising very rapidly – certainly at a much faster rate than the growth of available finances. Many outstanding pieces have recently come on the market. The effort to add as much as possible to the collections while desirable pieces are available, leaves us continually in a debit position and we are forced continually to refuse pieces which we cannot afford, or which may be on the fringes of our definitions of "Canadian." The Curator reported two years ago that a reasonable (though wishful) ideal for building a truly representative and mature national collection would entail the expenditure of a quarter million dollars a year over the next ten years *for museum objects alone*.

The department held six special exhibitions during the year – *Paintings in Early Canada*, *The Artist as a Young Man* (Peter Rindisbacher watercolours), *The Crown in Canada*, *19th Century Primitive Art*, *Plotting the Land, 1564-1919*, and *Canadian Counting House*, at Canadiana, and arranged four exhibitions for the Royal Bank of Canada. The department has also made loans to eight special exhibitions, from Guelph, Ontario to Victoria, B. C., including the large travelling Paul Kane exhibition.

During the year the Department purchased some 200 new acquisitions, of which the most important were a labelled Thomas Nesbit (St. John, N.B.) mahogany sofa table, a Scottish all-steel flintlock belt pistol of William McGillivray of the Northwest Company, and a Louis xv two-tiered Quebec buffet, all acquired, as well as several other pieces, through the Director's Purchase Trust Fund. We call on the most useful Sigmund Samuel endowment for less expensive objects acquired in greater quantity such as ceramics and glass, woodenware, ironwork, and some

furniture and pictures. For furniture and pictures of greater value, usually over \$1000 per item, we must increasingly rely on the Purchase Trust or outside grants.

Gifts and bequests during the year numbered nearly a hundred. The Laidlaw Foundation with its unfailing generosity supported the acquisition of a number of pieces of Quebec furniture, most notably a Louis xv mid-18th century armoire, a very fine Baillarget church carving, and several 18th century chairs. Mr. John Langdon gave us his large and comprehensive collection of woodenware; Mr. Guy Saunders, a collection of F. J. Shanly watercolours of the 1870s, and Mr. Ronald McRae, Mrs. Glen Lambert, Mr. G. G. Sinclair, and Mrs. Edgar Stone, some excellent pieces of furniture. The ROM Members Committee, from the proceeds of Romarama II gave a Quebec chandelier, a monumental Quevion church carving, and several pieces of furniture.

The lecture schedule during the year was heavy, particularly for the Curator and Mrs. Ignatieff. Most lectures, as usual, were for or through the Museum, or within Ontario. Mr. Webster also lectured to The Archaeological Institute

of America chapters at Brock and McGill Universities, to the Canadian Archaeological Society in Ottawa, The Society for Historical Archaeology in Washington, and at the Henry Ford Museum. Miss Holmes took over the Canadian section of the undergraduate Decorative Arts course, to which the other department members also contribute lectures. Mr. Webster undertook his graduate course.

In August the Department excavated the site of the Prince Edward Island Pottery in Charlottetown, the first Maritimes ceramics site to be excavated completely.

It proved a most valuable exercise and yielded clues which relate also to most early Maritimes ceramics. A short colour film was made of this dig which has now been edited. In June we commenced a summer-long excavation of Fort Senneville at Senneville, Quebec, a fortified house of the early 18th century, an operation which has been planned since the Ile des Soeurs excavation of 1969. At the time of writing, this site is proving to be the most rewarding of any yet undertaken – being larger and richer in structures and artifacts than that at Ile des Soeurs. It will provide many insights into the domestic life and material history of New France.

In the Canadiana building itself, the Canadian glass exhibition was completed in December and now forms an integral unit within the North Gallery. Other exhibitions have gradually grown more crowded as we acquired prime pieces which simply had to be displayed.

Visitors to the galleries during the year totaled 24, 561, an increase of 1,582 over last year.

Mr. and Mrs. J. H. Crang and Mrs. Mary Allodi discuss Peter Rindisbacher watercolour at the opening of *The Red River Artist*.



Conservation Department

Bernard Leech,
Associate Curator-in-Charge
Mrs. M. K. Allan, *Curatorial Assistant*
Mrs. E. A. Phillimore, *Conservator*
Mrs. C. Jack, *Assistant Conservator*

Mr. J. Chalmers, *Assistant Conservator*
Mr. D. Dudley, *Paper Conservator*
Dr. A. Wyner, *Spectrographic Tech.*
Mr. P. Cox,
Trainee Ceramics Conservator
Professor U. Franklin,
Research Associate

The absence of air-conditioning in the Museum and the high level of pollution add to the important work of conservation. Mr. Leech reports that, although the staff complement has fluctuated somewhat during the year, every working position is now filled though not necessarily with permanent staff. We were pleased to welcome to the department Mr. David Dudley, previously a senior conservation officer in the British Museum, whose work in the conservation of paper and oriental materials adds considerable strength.

It is a pleasure also to report that a volunteer position was created which was most ably and cheerfully filled by Mrs. Joyce Levy.

A closer liaison with Art and Archaeology department technicians has enabled more work to be accomplished outside our own laboratories using methods and materials approved by us. It is hoped that we may utilise and enlarge such relationships with other departments during the coming year.

Miss M. Clavir has now been appointed trainee conservator and Mr. P. Cox confirmed as an Assistant Conservator (ceramics).

The activities of the Department can be divided into two main groups, conservation proper and research. We like to think of these two groups as integral equally important components of a scientific/craftsman team. In research, Mrs. K. Allan is carrying the main burden of technical study of Chinese bronze weapons and judging by the many remarkable photo-micrographs which are being obtained continues to make splendid progress.

The emission spectrograph, operated first by Dr. A. Wyner and at present by Miss A. Mah, is now producing results of a semi-quantitative nature which will enable us to compare our results with similar studies carried out in other institutions. Such results, when interpreted with the X-radiographs and the metallographic data by Professor Franklin will, we hope, illuminate an

area of early technology considered unique. The technical study of our large Chinese bronze collection is a long overdue development which other museums will welcome.

A generous grant from the Canada Council enabled some of the backlog of archaeological specimens for carbon dating to be sent to a commercial laboratory. In addition, a few duplicate samples are being treated and dated by the newly installed equipment at Ryerson Polytechnic as part of a course in radio chemistry. While such a development locally is welcome, when space and funds allow, there is more than sufficient reason to establish such a dating laboratory in the ROM.

Co-operation with the National Gallery laboratory in Ottawa on the analysis and identification of glaze components on ceramics should demonstrate the essentially complementary nature of, on the one hand, the emission spectrograph and on the other the completely non-destructive technique of energy dispersive X-ray spectrography.

Samples taken from ceramics throughout the Museum were sent to Oxford, England for thermo-luminescent dating in their Research Laboratory for Archaeology and the History of Art.

Great care and supervision is constantly necessary with objects in the galleries and storage areas. Records of temperature, humidity, lighting and also vibration were taken from various parts of the Museum. These enabled us to improve some conditions with respect to lighting and vibration. However, the enormous problems of controlling temperature, humidity, and air pollution still face us and, without major outlay, the situation is little more than hopeless.

In spite of all efforts there has been an unusual number of outbreaks of moth infestation in the ethnology storage areas. This can be ascribed in part to neglect but mainly to the legacy of a totally inadequate building in which properly to contain such problems. Loss and damage to the collection has been noted, objects sequestered for individual treatment and a contract for regular fumigation arranged.

The long task of conserving and restoring the leather wall hangings was completed and they were subsequently installed in the humidity-controlled "Baroque Room."

For a long time the Museum has desired to sell good reproductions. This involved the Department in the preparation of moulds for the production of plastic replicas and the finishing of prototype replicas – a task somewhat outside its normal duties. Technically the project was successful but to produce replicas in large quantities will clearly require the establishment of proper facilities and a considerable capital investment.

Large-scale ceramics conservation finally started some six months ago and the output of work in this area is most satisfactory. Many interesting metal objects have been examined and treated this year whilst the addition of the Zacks' collection underlines the need for more systematic treatment and storage of metals. The conservation of Paul Kane paintings and paintings from the Canadiana Department continues.

Paper conservation and our new ability to treat oriental paintings and materials taxes Room 56 to the limit and it is hoped that, by the time Mark Burnham returns from his studies in Germany, additional space will have been found for textile conservation.

Accidents, theft and vandalism are a constant and serious concern. The Museum must increase its guard strength, secure more objects behind glass or even, as a most regrettable last resort, remove from display our more tempting material.

As in the previous year, condition reports on 2,000 objects were made. Close liaison with this Department ensures that any anomalies or difficulties are brought to our attention immediately. Over 1,000 objects received treatment and attention and some 250 objects are at present undergoing some form of long-term treatment. Queries from the general public at times run to as many as five or six a day and consultations with those who come to the Museum have risen to at least ten a week.

Egyptian Department

Dr. Nicholas B. Millet,
Associate Curator in Charge
Miss Winifred Needler,
Curator Emeritus
N. Wasiliw, *Technician*

Dr. Millet, as successor to Miss Winifred Needler, Curator Emeritus, has spent a busy first year finding his feet in the Department. This task had been made immeasurably easier by Miss Needler's efforts, during her last years in the ROM, to leave affairs in a satisfactory state for her successor. Having benefited by her foresight, the new head of the Egyptian Department now feels that he is learning his way around the collection and the records at a respectable pace.

Early in the year the five Egyptian galleries were given a general refurbishing, the intent being merely to make them somewhat more attractive looking until new lighting and better cases can be installed and a more far-reaching reorganization undertaken. Case-backgrounds were cleaned and the brown wood brackets repainted in the background colours to make them less obtrusive. It was decided also to undertake a somewhat unique, ambitious reorganization of Gallery Five, the Mummy Gallery, with the aim of making it more cheerful and attractive, and gradually to reorganize the exhibits in such a way as to appeal to children and to present the material in a more instructive fashion. The emphasis is now on the use of the funerary and religious material to cast light indirectly on other, broader aspects of Egyptian life and culture. In the window-bay area in this gallery, a rather difficult space to utilise practically, we installed a replica of an Egyptian tomb as it would have appeared on the day of burial. This project is now on the point of completion, having taken more time and energy on the part of both this department and Display General than was anticipated. General improvements in the Mummy Gallery included the installation of new track lights on the ceiling and dark blue paint for the walls. In the course of the coming year further improvements will include more attractive mummy-cases placed in upright position in specially made cases and the reorganization of the wall cases.

The year has been a lean one for acquisitions, largely due to the inflated state of the art market. The department's outstanding acquisition was due to the generosity of Mr. R. W. Finlayson through the Ontario Heritage Foundation. This is a life-sized basalt head of a Memphite notable, dating to about 100 B.C. The piece is a considerable addition to the collections, as the ROM has little sculpture of the Ptolemaic Period and still less of such relatively large-scale work. Such pieces now come only very rarely onto the market and command extremely high prices.

The department also received a group of bronzes and other small objects from the Zacks Collection. This year's assignment of finds from the Egypt Exploration Society, to which we have subscribed annually for many years, has been made by the Society's committee but has not yet reached the Museum. Dr. Millet has, however, viewed the objects in the British Museum and reports that the Society has treated us generously. In addition to two good examples of mummified birds from Saqqara, especially requested by Dr. Millet with an eye toward improving the display in the reconstituted Mummy Gallery, there are several extremely good bronze figurines from the same site, including a very fine and large group of Isis and the infant Horus. It will strike many people as odd that the Egyptian Department would congratulate itself on the acquisition of bronzes when we already have more than we can exhibit, but, in point of fact, good bronzes excavated in archaeological context are at a premium. Most of the bronzes in our collection which came to us as gifts, are of unknown provenance and date, and therefore, however attractive they may be, are of considerably lower scientific value.

The project of improving departmental records with regard to cataloguing continues in the hands of the departmental secretary, Mrs. Annette Gromow (formerly Jarek). Mrs. Diana MacFeeters, the departmental volunteer, has given a great deal of time to the task of bringing up-to-date photographic and library records. Mr. N. Wasiliw, technician, has devoted much of his energies this year to work connected

with the refurbishing and reorganisation of the Mummy Gallery, and with the tomb replica in particular. To him has fallen most of the task of making and decorating, under supervision, those items of the tomb equipment which are reproductions as opposed to actual ancient artifacts. Under the guidance of Mr. J. Chalmers of the Conservation Department, he has also done a considerable amount of conservation work on the coffin to be used.

Research activities continue. Miss Needler received a Wilbour Fellowship from the Department of Ancient Art of the Brooklyn Museum to carry out a study of that museum's holdings in the field of Egyptian prehistory. This will be published as a monograph in the near future. Dr. Millet continued his researches in the ancient Meroitic language and hopes to publish in the not too distant future. In connection again with the reorganisation of the Mummy Gallery, he has been making a study of coffins and funerary equipment, a much neglected and little-known area of artifact archaeology. During a recent trip to England on other business Dr. Millet also made new studies and drawings of an important group of late predynastic monuments, the maceheads from Hierakonpolis and the Hunter's Palette whose fragments are in the British Museum and the Louvre. This project is far from completed and will require another examination of the objects themselves, now scheduled to be made in September, before Dr. Millet attends the International Meroitic Studies Conference in East Berlin.

During the past year Dr. Millet was invited to give a paper "Language and Literacy in the Ancient Sudan" in the Ancient Languages Section of the University of Khartoum's *Second*

International Conference on Languages and Literature in the Sudan, in Khartoum. The occasion brought together a number of scholars involved in the area of Meroitic studies and the Egyptian period in the Sudan. He is also a member of the Board of Governors of the American Research Centre in Egypt, Inc., and the Advisory Council on Archaeology and Related Sciences of the Smithsonian Institution's Foreign Currency Program. In late May Dr. Millet spent two weeks in England, visiting centres of Egyptian studies and interviewing candidates for the position of Assistant Curator in the Department. In January he was invited to give a paper to the Society for the Study of Egyptian Antiquities in Toronto on the subject of "The Present State of the Decipherment of Meroitic."

The only new loan made out of the Department's collections is a small one. Nine *shawabti*-figures went to the Agnes Etherington Art Centre of Queen's University, Kingston, from July to October of the current year. These, together with others from private collections, will illustrate the development of artistic style through the medium of this class of minor figures.

During the weekend of the 13th of November, 1970, the University of Toronto acted as host to the Annual Meeting of the American Research Centre in Egypt, the foremost North American organization for Egyptian studies. The ROM held a very successful party and reception for the members, which served to close the Meeting on an informal and pleasant note.



Reproduction of Egyptian fan. The African vulture feathers were donated by the Ornithology Department.

Department of Ethnology

Dr. E. S. Rogers, *Curator*
Dr. Helmuth Fuchs, *Associate Curator*
Dr. J. G. Taylor, *Assistant Curator*
Dr. C. A. Bishop, *Research Associate*
Dr. M. Black, *Research Associate*

Dr. W. P. Carstens, *Research Associate*
Dr. David Counts, *Research Associate*
Dr. T. B. Hinton, *Research Associate*
Mrs. Joan Vastokas, *Research Associate*
B. Johnston, *Lecturer*
Mrs. Kathleen Wood, *Senior Technician*
Miss S. G. Graham, *Technician II*

Dr. E. S. Rogers reports that so much took place within the Department of Ethnology that it is only possible to touch on the major events. Each year the operation of the Department, which covers such a large area, becomes more and more diversified. It is compelled to become involved with a variety of projects prompted through requests from various outside agencies and individuals and stimulated from within the Museum itself. Notable is an increasing involvement of the Department within the community especially among Indian people and with matters pertaining to them. This reflects a growing concern on the part of the Canadian people with social problems. Both Indian and non-Indian are seeking solutions through involvement with those organisations, such as museums, which offer a tangible contact with the past. The Indian in particular is becoming more concerned with his cultural heritage. This interest in what the Department of Ethnology can provide is not only satisfying but creates problems that Dr. Rogers underlines in the following report.

As mentioned in the Annual Report for 1969-70, the Department acquired a large collection of artifacts from New Guinea and held a special exhibition in the late fall of 1970 which exhibited indigenous cultures from various parts of New Guinea and the Bismarck Archipelago. From all reports the exhibition was successful and credit is due the Display Department, Mrs. Wood of the Department and her staff. The exhibition was accompanied by a series of four lectures: "Ritual Ceremonies and Masks" by Dr. R. F. Salisbury; "Artifacts and Trade of Eastern New Guinea and the Bismarck Archipelago" by Dr. D. Counts; "Investigating the Looting of the Amboin Caves" by Edmund Carpenter and "Two Views of Another World" by Norman Elder and Dr. E. S. Rogers.

A second major event during the year was the acquisition of over 100 pieces of material from West Africa. Due to the diligence of Mr. Harry Rayfield who made the collection on behalf of the Royal Ontario Museum, the quite old and well-documented material represents many a tribal group. The artifacts fill gaps in the existing collections and it is probably safe to say that the Department of Ethnology now has one of the finer representative collections from West Africa. We hope it will be possible in the very near future to have a special exhibition of much of this material. This implements the Director's desire to show more of our own reserves than hitherto.

During the past year, the Canadian Broadcasting Corporation produced a television programme entitled "Paul Kane Documentary" which was shown in the series *Man at the Centre*. This documentary depicted the travels of Kane from Toronto to the West Coast and was based upon his paintings and sketches housed in the Department of Ethnology and upon film taken in the country Kane traversed. The film was released in October last year.

The ethnographic collections were also used in a variety of other ways. As usual, a number of loans were made and the collections were drawn upon for many photographs for use by scholars, publishers and the government. In addition, the collections were used in the preparation of the 1971 calendar for the Toronto-Dominion Bank. They were also utilised by ETV for their two-minute shorts, a programme initiated and undertaken by Mr. Hew Bayley of the Museology Department. These television shorts posed certain problems since the scripts dealt with Indian people. It was felt that Indian viewers might raise objections, as was the case with CTV's "Taming of the Canadian West." As a safeguard, the films were kindly reviewed by several Indians who had constructive comments to make regarding future programmes. ETV also spent several weeks at the beginning of the year filming part of the New Guinea collections for a series of ten-minute films to be shown later this year on the French television network.

A pilot project to develop replicas for the North York School Board was completed during the course of the year. The Conservation Department made six replicas of different Indian artifacts which are being tested in several schools. However, even the seemingly innocuous making of the replicas has raised several problems. There is concern on the part of those agencies both private and governmental engaged in the development of handicrafts among the Indians of Canada as to the validity of placing on the market replicas which may undersell the products manufactured by Indian craftsmen. Private firms, through legal technicalities, have entered the field of mass producing items in imitation of Indian and Eskimo craft. It is these firms, generally not the museums, which have prejudiced the case for replicas. In addition, the Indians have voiced their fears of the commercialisation of items which are a part of their cultural and spiritual heritage. Although they hold no legal copyright, they understandably feel concern.

Another event of considerable importance was the dedication on November 20th of the Museum's notable Tsimshian Mountain Totem Pole in honour of the late Professor T. F. McIlwraith, through funds donated by friends, including members of the staff, to the "T. F. McIlwraith Memorial Fund." This was a most appropriate gift as, for many years, Professor McIlwraith had been in charge of the Department of Ethnology and had aided Dr. Currelly in acquiring many of the very fine collections that the Department now holds.

During the course of the year, a committee composed of six Indians, Andrew Riekard, Delia Opekokew, Harvey McCue, Walter Currie, Basil Johnston and Johnny Yesno, was established. The committee was formed to assist in dealing with those projects which relate to the culture and history of the Indians of Canada. It was felt of vital importance to have such a group to give guidance in an attempt to avoid making unfounded assumptions which at a later date would reflect on the operation of the Department.

A select group of twelve high-school students from Scarborough received a six-weeks introduction to Ethnography with emphasis on the Canadian Indian by means of a weekly seminar in the Department of Ethnology. They utilised the collections, films, slides, lectures and discussions. The programme was conducted by Mr. Paul Voisard, graduate student in anthropology at McMaster University. He was assisted by Mr. Dow Selby of the Ontario Department of Lands and Forests.

During the course of the year, many students have been involved in work of one kind or another within the Department. Miss Helen Devereux continued work on an analysis of her excavated materials of Beothuk sites in Newfoundland for her dissertation. Mr. Jerry O'Carroll, Mrs. Pattie Grimes and Miss Elizabeth McLuan, under the direction of Mrs. Wood, are assisting in work on the collections. Mr. Glen Smith is organising news clippings on the Indians of Ontario. Mrs. Mary Gordon is involved in the preparation of an ethnographic bibliography of the Subarctic.

During the summer of 1970, Dr. Garth Taylor undertook field work at Webique in northern Ontario. The investigation was two-fold: one, to investigate the effects of tourist fishing on the economic

development of the Ojibwa community at Webique and the second to continue his collection of data for an ethnographical study of the Landsdowne House-Webique area. The latter was the second phase of a study concerned with the recent history and contemporary life of the Indians of this part of northern Ontario. A report entitled *Economic Development in Two Ojibwa Communities in Northern Ontario: 1949-1969* was submitted to the Ontario Department of Lands and Forests. The work is sponsored by the Government Department in co-operation with the Royal Ontario Museum. In addition, Dr. Taylor continued his study of collections of Canadian Eskimo material in European museums and has now completed an examination of all major holdings on the Continent and in England. The purpose of this journey was to assemble all relevant data for a description and an analysis of the material culture of the Eskimos of the Eastern Arctic. This year's trip also had the additional aim to examine the Amundsen Collection in the Oslo University Museum. This proved to be a most successful aspect of the work revealing a collection of over 800 items from the Netsilik Eskimo, a collection that is earlier by 20 years than that made by Birkett-Smith and one which has never before been studied. Dr. Taylor plans to make a detailed study of this collection next year.

Dr. Helmuth Fuehs spent several months on the Peninsula La Guajira, Colombia, Venezuela, where he and a group of students did research on cattle breeding, oral traditions, ethnomusicology and domestic economy. He also collected one hundred items of Guajiro material for the Department.

Dr. Mary Black during the summer of 1970 prepared a final report on her 21-month field study of the Round Lake Ojibwa of northern Ontario sponsored by Agricultural Rehabilitation Development Administration and administered by the Ontario Department of Lands and Forests and the Department of Ethnology. She submitted her report to the Federal and Provincial Governments but it has not yet been made available to the public.

Dr. Black has now re-assumed her teaching duties at San Fernando State College, California, but will return in the summer to Round Lake.

Dr. Ted Steegmann is at present in the field making a survey of communities in the Severn River Drainage Basin of northern Ontario in order to lay the ground work for a major anthropological study starting next year. This is to be an expansion from the Round Lake Studies. The major problem is to secure necessary funds.

Dr. Charles Bishop is back in Ottawa to continue his work in the archives of the Hudson's Bay Company examining materials relating to the Indians of the Albany River Drainage Basin. This latter work will eventually be co-ordinated with that of Dr. Steegmann and Dr. Taylor.

The Department is also involved in the preparation of several papers for Volume Five, "The Arctic," and Volume Six, "The Subarctic," part of a major series, *Handbook of the North American Indians* being produced by the Smithsonian Institution.

Mr. Basil Johnston's services have been retained for a further year and his annual report has been submitted to the Education Department.

European Department

Heribert Hickl-Szabo, *Curator*
Mrs. R. J. Bacso, *Assistant Curator*
J. C. Keeble, *Curatorial Assistant*
Ladislav Cselenyi, *Curatorial Assistant*
George Deronov, *Technician*

Mr. Hickl-Szabo reports that his year began with the installation of the Baroque room and necessary accompanying changes in Gallery 8. Such rearrangements help to keep the galleries fresh and interesting. Changes were also made in the Armour Court, where photographic enlargements on the backs of cases show how the objects were used. The free-standing armours were set behind a barrier in the centre of the gallery. This serves to protect them and to make them visible from the front door or even from the street. A new case shows Landsknecht material and gives an idea of how armies were formed, how they fought and what weapons and equipment were used at the beginning of the 16th century. This was designed to test the efficacy of display techniques and labelling of a type used at the National Museum in Stockholm and in the Tower of London. A start was made on cleaning the firearms, which should be examined and oiled at least once a year. A case of small sculpture was installed in Gallery 6, and lined with purple felt which enhances the display of metals. Further gifts of musical instruments have again involved Mr. Cselenyi in work on the display of musical instruments. Preparations for a new 19th century English display have continued, and it is hoped to begin further gallery changes soon.

Research on the Louis XIV furniture has begun and, in connection with the new Baroque gallery we acquired, with the help of Mr. John Schorscher, a 17th century Italian painting of the Genoese school. Through the Ontario Heritage Foundation we obtained from Mr. Robert Barr a fine painting by Saftleven and another by Backhuysen. A visit to Europe resulted in the acquisition of a bronze figure of a prophet of particularly



St. Jerome, bronze statuette believed to be from the workshop of Severo da Ravenna.

fine quality. This is tentatively ascribed to Calcagni but is still the subject of exhaustive research. During negotiations in Europe with Monsieur Fourest concerning the French Ceramics Exhibition, the Curator visited him for a final check of the material and found, quite by chance, a high Gothic glass vessel which we were able to purchase. Altogether the Curator reports 21 important acquisitions including a splendid silver candelabrum by Paul Storr, early 19th century from Mr. R. G. Meech, Chairman of the Board, through the Ontario Heritage Foundation.

Mrs. Bacso has been engaged on research on the Louis XIV furniture, and also on Bohemian glass and the Tassie glass miniatures and gemstone reproductions.

Mr. Cselenyi has undertaken five major pieces of research: On a 15th century use of the Rouen Book of Hours, resulting in a 57 page study with illustrations of comparative material; on the leather wall hangings, the results of which it is hoped to publish as an Occasional Paper, and on the collection of German, Dutch and Flemish prints, with a view to cataloguing them properly and writing a guide. Work on the Rembrandt etchings is now complete. He is working on the importance of the R. S. Williams family in the development of music in Canada, a study which will involve a full two years of work, and on the autographs and letters of famous musicians in the R. S. Williams collection.

Mr. Keeble has done much research on bronzes throughout the year. In Europe last summer he studied at the Ashmolean Museum, the Victoria and Albert Museum and the Louvre which led to an article in *Rotunda*. His work also enabled him to make some tentative attributions of our own bronzes, notably the newly acquired fine figure of St. Jerome which he believes may be from the workshop of Severo da Ravenna. The large bronze group hitherto labelled "Hercules and the Cretan Bull, by Giovanni da Bologna," he has relabelled "after Giovanni da Bologna." He is still working on our recent accession, the figure of a prophet, and feels hopeful of a definite attribution. His notes on this body of work will lead to further publications.

The Curator and Mrs. Bacso contributed 33 lectures on the Applied Arts in Europe to third and fourth year students in the Fine Arts Department, U. of T. The remainder of the course was given by the Textile Department and the Canadiana Department. The galleries have, of course, been popular areas of guided tours by the Members Committee.

In keeping with the Director's wish to develop the Museum's potential as a more sophisticated educational and information resource, Mr. Keeble is working in co-operation with the Museology Department on some experimental films. Two scripts are in progress. His collection of slides, made during two years of study in Europe, form useful illustrative material. He has also begun a photo library for painting, sculpture and silver, based on the Witt Library of the Courtauld Institute. The curatorial staff of the Department is supervising the work of two museology students.

In the field of special exhibitions, Mrs. Bacso arranged an exhibition of the James Tassie collection of glass paste miniatures and gemstone reproductions in the Third Floor Rotunda in the

autumn, and Mr. Cselenyi, an exhibition of prints by Joris Hoefnagel (1542-1600). Mr. Cselenyi acted as consultant for two loan exhibitions of prints. The first was to the Kitchener-Waterloo Gallery for a print study course, the second was to the Agnes Etherington Art Centre at Queen's University. He has rendered assistance to Dr. Rolf Fritz, formerly Director of the Dortmund Museum, in his research on coconut cups, and to Professor Angela Donen Lattanzi of the University of Palermo in her research on Italian manuscripts in the Lec Collection.

On Wednesdays during the year he examined 108 objects for the public, 33 of them musical instruments; the remainder were paintings, icons and prints.

Mrs. Bacso was involved in considerable extra work on the draft English translation of the catalogue of the French Ceramics exhibition.

It is sad, for yet another year, to report the serious affects on our treasures of the lack of temperature and humidity control. It is difficult to understand how such conditions can be tolerated on this continent.

Far Eastern Department

Dr. Hsio-Yen Shih, *Curator*
Mrs. Barbara Stephen, *Associate Curator*
Miss Doris Dohrenwend,
Curatorial Assistant

Chin-Hsiung Hsü, *Curatorial Assistant – Senior Technician (P/T)*
Miss Betty Kingston, *Librarian*
Professor David Waterhouse,
Research Associate
Mrs. Sara Irwin, *Jr. Technician (P/T)*

Miss Nancy Evans, *Jr. Technician (P/T)*
Hugh Wylie, *Junior Technician*

"The number of third floor visitors who have enquired 'When will the Chinese Bronze-Age galleries open?' reassures the Far Eastern Department of the public's constant interest and vigilance." Thus reports Dr. Hsio-Yen Shih who adds that the remodelling of three galleries devoted to the Shang, Chou and Han dynasties has occupied many members of the Department throughout the year.

A great deal of work was necessary on the objects to be displayed. Mrs. C. Jack and Mr. P. Cox bore the brunt of conservation work, of which the cleaning and treatment of bronze materials were most important. The unregulated climatic conditions in our galleries have unfortunately made "bronze disease" virtually endemic for our archaic artifacts. Miss D. Dohrenwend and Mr. Y. Mino helped the Curator with preparation of the Han gallery. Mrs. George C. R. Harris, an unpaid volunteer but by now professional in her dedication and scholarly care, catalogued the belt-hook collection. Mrs. D. Hoover, a second indispensable volunteer, and Mrs. S. Irwin catalogued over 600 bronze weapons under Mrs. B. Stephen's supervision.

We hope that visitors to these galleries will find in them a more aesthetically pleasing, as well as clearer historical presentation than previously.

As a corollary to the remodelling, a major research project in technical studies on Chinese Bronze Age weapons has been active for over a year. This has been supported by a grant from the Canada Council. Mr. B. Leech and Mrs. Stephen, both of the Museum staff, and Professor U. Franklin, a Research Associate from the Material Science Unit of the University of Toronto, have been the principal investigators. They have had the valuable assistance of Mrs. M. K. Allan and Dr. A. M. Wyner, both of the Conservation Department.

Mr. K. Bhattacharya, a student and summer employee from the University of Toronto's Department of Metallurgy, prepared and submitted specimens to radiography, spectrographic analysis and X-ray spectroscopy. For the last, we thank the Ontario Research Foundation for the use of its facilities.

Meanwhile, work in other areas continued and expanded. The Department contributed to a number of exhibitions. Holy Blossom Temple has mounted a display of Chinese Judaica on extended loan from the Museum, within a setting handsomely provided by the Temple. A few other examples from the K'ai-feng Jewish community were shown in the Israel Pavilion at Edwards Garden. Objects were lent to the Norman Mackenzie Art Gallery in Regina for a special exhibition of oriental art, and to "200 Years of Japanese Porcelain in American Collections" shown at the City Art Museum of St. Louis and the William Rockhill Nelson Gallery-Atkins Museum in Kansas City. A small Japanese print exhibition from the Museum collections was hung in honour of the Olivetti Company's "Kyoto" evening. More important was the loan exhibition of modern Japanese prints "Sosaku Hanga" from the collection of Mr. R. G. Cole, a Trustee.

Special thanks are due to Mr. J. Vollmer, now of the Textiles Department, and Professor D. Waterhouse, our Research Associate from the Department of East Asian Studies, University of Toronto, for the excellent taste and scholarly presentation of these selections.

Miss Dohrenwend completed her catalogue of the Department's Chinese jades and supervised photography of the items to circulate in a travelling exhibition from December 1971. Mr. Mino arranged and supervised the photography of our Chinese tomb figurines, a prerequisite of the catalogue being prepared by Miss Shih. Both Messrs. Mino and C. H. Hsü continued specialized researches in their respective subjects, as the bibliography will demonstrate, the former in Chinese ceramics of the Liao Dynasty and celadons from the Six Dynasties through Sung, and the latter in historical implications of oracle bone inscriptions.

Mr. Hsü has also completed the Chinese draft of the second volume for the oracle bones catalogue, which he is now in the process of translating.

Professors K. Stevens of the Department of East Asian Studies, University of Toronto, and R. L. Pian of Harvard University's Department of Far Eastern Languages, kindly advised on cataloguing of the Department's musical instruments. Conservation and restoration of selected examples for display or demonstration use has been begun by Mr. J. Chalmers, in hope that next year will see possible a folk and theatrical arts gallery.

Mr. P. Ayotte, while in his first year at law school, continues cataloguing the Ku Kung photographic archives. Over 2,000 mounted photographs were incorporated into our files this year. Miss V. Dickenson finished her Bachelor's degree in Chinese studies at the University of Toronto, and has done brave work in recataloguing almost 5,000 slides which we use as teaching aids. Mrs. Irwin took a brief maternity leave and returned to part-time work on our staff almost as soon as humanly possible. Miss N. Evans' excellent command of the Chinese language, as well as current affairs, made her a welcome addition to this Department, and an engaging adjunct-teacher for the Education Department, with whom we shared her brief stay. She has now accepted a more permanent position with the Provincial Government. In her place, we are fortunate to have the services of Mr. H. Wylie, similarly a Master of Arts from the University of Toronto's Department of East Asian Studies, but specializing in Japanese art.

Though now a member of the Textiles Department, Mr. Vollmer continues a close relationship. He is currently working on a catalogue of the Japanese materials in the Art Gallery of Greater Victoria, B. C., preparatory to an exchange of exhibitions scheduled for late 1972. Again, we thank the Canada Council for making these researches possible.

Teaching activity was as varied as usual. Miss Shih taught at York University from September to December, 1970, and at the University of California, Berkeley from January to April, 1971. Mrs. Stephen and Miss Dohrenwend both taught for the Department of East Asian Studies, University of Toronto, through the academic year. The Department's contribution to the Extension Programme was assisted by Mr. Vollmer.

Miss Shih also gave public lectures on "The Finlayson Collection: a new phase in the understanding of Chinese Painting" at the National Gallery, "Line and Movement in Chinese and Japanese Art" at the Normal Mackenzie Art Gallery in Regina, "Chinese Tomb Figurines" for the Friends of Asian Art and "What is Chinese Culture?" for the Chinese Cultural Centre, both in San Francisco. She contributed, in addition, a half-hour programme in Chinese woodblock prints to an ETV series on the relationship between word and illustration in printing. Mrs. Stephen spoke on "Metals Technology in Ancient China" to the Department of Metallurgy and Material Science at the University of Toronto.

In recognition of the first display for many years of the Museum's Tibetan tankas, the Department had the honour of sponsoring a lecture on "Tibetan Buddhist Imagery" by Professor J. C. Huntington of Ohio State University.

Mrs. B. Kingston reports a happier year for the library. Not only has our budget increased to a more realistic level, but the addition of Mrs. M. Bird for part-time clerical work has facilitated book-ordering and cataloguing. 902 book, pamphlet and periodical volumes were accessioned, making the Library's total holdings now 11,068 volumes. 828 titles were catalogued, both from new acquisitions and from the long-held Chinese books of the Mu Library.



Philately Department

Douglas Patrick, *Honorary Curator*

The lack of a restaurant on the premises for a part of this fiscal year encouraged the Department to demonstrate its culinary abilities at Monday lunches held in the Library. Without undue modesty, they may claim to have upheld the highly civilized eating standards of the Far East. The lunches also gave us the opportunity to thank our many unpaid helpers more concretely than is usual. Mrs. D. F. Kent completely reorganized our accession card catalogues. Mrs. Arnold C. Matthews began to make sense of our study files; her completion of the Indian section is a model of logic and administrative efficiency. Mrs. Harris finished cataloguing all Chinese ceramic, stone and wood pillows. Mrs. R. Murray Bell continued the tedious but invaluable work of mounting photographs. Mrs. P. Ellard did similarly with slides. We welcomed a new volunteer, Mrs. A. T. L. Fraser, who re-organized the pamphlet and sales catalogue section of the Library for Miss Kingston. In addition, Mmes. S. O. Carter, J. Fitzpatrick, W. R. Parker, W. O. Randall, J. A. Rhind, J. F. Smith and D. G. Watson continued their excellent gallery tours for the general public.

The collections steadily increased through the generosity of donors, the Director's Purchase Trust Fund, and the Provincial Government's annual allotments. Dr. Borowski gave four

"animal style" bronzes which he had long left with us on loan. Mr. H. Chang contributed a Chinese stone quern, 19th – 20th century. Mr. Roy Cole and Mrs. George G. R. Harris each provided funds for the acquisition of two fan paintings by Chong San (1676-1759), a noted Korean literati. Mrs. F. H. Ferris, Jr., gave a Chinese blue-and-white porcelain bowl of the 17th century. From the estate of Luella M. McCleary, we received five examples of Japanese glass and silverwork, 20th century, and two Chinese enamelled porcelain ginger jars, 19th century. His Excellency, the Governor-General of Canada, Mr. Roland Michener and Mrs. Michener during a personal visit presented a 32 piece Indian ivory chess set, 20th century, and the deluxe edition of *300 Paintings from the National Palace Museum* which had been the centennial gift of Generalissimo Chiang Kai-shek. The Right Reverend Okada, Chief Abbot of Daigo-ji, Kyoto, most thoughtfully sent to us through the Director an architectural bracket base of the 10th century, removed from his temple's famous pagoda during reconstruction. Mrs. Edgar J. Stone has continued her many contributions to the Department with three prehistoric Japanese pots of Jōmon and Yayoi types, and a Ko Imari porcelain cup and saucer of the 18th century. A most handsome Chinese temple table, late 19th to early 20th century, came to us from Mrs. Paul Sykes.

The Curator acquired for the Department, following her journeys in Asia of last summer, two examples of Annamese blue-and-white porcelains, late 15th – 16th century; a Chinese blue-and-white porcelain dish, late 16th – early 17th century; a Chinese gilt-bronze statuette of the Eleven-headed Kuan-yin, 7th century; and paintings by Ch'en Hung-shou (1768-1822), Chou Ch'uan (active c. 1700), Chou Hao (1675-1763), Lan Ying (1585-1664), Kung Hsien (17th Century), Wu Pin (early 17th century), I Kai (18th century), Minagawa Gen (1734-1807), Noro Ryu (1747-1828), Sakai Shinen (1698-1753) and Sataka Sadakichi (1738-1790).

The Museum is greatly indebted for yet another year to Douglas Patrick, our Honorary Curator, for a series of exhibitions of stamps from the Museum's important and growing collections. Every six weeks he organises shows which greatly appeal to enthusiasts. It is most unfortunate that we have no room for a proper gallery or even adequate working space for him. He exhibited stamps of *Musical Composers, Malta, Queen Victoria, Swiss Pro Juventa, Canadian History, Fiji, The Bahamas* and an outstanding collection of *Tristan da Cunha*. From time to time he has tried to relate his stamp exhibits to other exhibitions and activities in the Museum.

Collectors have been most generous this year. Mr. W. H. Thorburn made two further major gifts of Canadian stamps – outstanding among them being an 8 cent registered stamp and most valuable Queen Victoria Jubilee 1897 examples. Miss Adele Harman gave a unique letter from Sir Sandford Fleming to James Morris, son of the Hon. James Morris, Postmaster General of the Province of Canada in 1851, the year of the introduction of adhesive postage stamps. Collectors will recall that Morris and Fleming developed this stamp. She also gave an example of the 1852 issue in perfect condition. A similar but less important letter was sold in 1969 for \$10,000. The third notable gift, a large collection of one-of-a-kind Canada stamps, was made by Mr. D. B. Strudley of Stratford via the Ontario Heritage Foundation.

Mr. Patrick continues to inform the public in his field through his popular radio programmes and regular *Globe and Mail* articles.

He has now retired from earning his livelihood and will devote even more of his time to philately. We hope also to helping so generously the collections of the ROM.

Greek and Roman Department

Mrs. Neda Leipen, *Curator*
Miss A. C. Harle, *Assistant Curator*
Dr. J. W. Hayes, *Assistant Curator*

Dr. J. S. Wilkinson, *Research Associate*
Dr. J. Walter Graham,
Research Associate

During the year, according to Mrs. Leipen, a number of projects were successfully completed. John Hayes finished and prepared a major publication – the catalogue of our important collection of Greek and Roman glass comprising over 600 items and representing a good cross-section of types and techniques. The glass, formerly dispersed throughout several galleries, has now been brought together in a series of large wall cases in one of the Roman galleries where it is grouped according to the widespread centres of its manufacture in ancient times. The old cases have been attractively refurbished and well lit, thus enhancing the delicacy and the beauty of the material. In the course of his work on the glass, John Hayes made a number of visits to some of the outstanding collections of ancient glass in both North America, notably the Brooklyn Museum, the Corning Museum of Glass, the Toledo Museum of Art and the Yale University Art Gallery, and abroad (the Fitzwilliam Museum, Cambridge, and the Archaeological Museums, Istanbul). A visit to Toronto and the ROM of one of the foremost experts on ancient glass, Dr. Donald B. Harden of London, afforded the curatorial staff a most fruitful discussion and exchange of observations. In the summer of 1970 Dr. Hayes again worked at the late Roman-early Byzantine site of St. Polyeuktos in Istanbul, excavated by the Dumbarton Oaks in Washington, where he has been classifying the rich pottery finds and preparing them for publication.

Miss Alison Harle made great progress in her particular field of interest and study, Britain under the Romans. Using our important archaeological material from Britain as well as illustrations of Romano-British artifacts elsewhere she has arranged a series of table cases so that various aspects of public and

private life in Roman Britain are now vividly illustrated. In one of these displays Miss Harle has shown household and industrial bronze and iron tools and implements together with some of the finished products (shoes and decorated leather) and some examples of raw materials. Another exhibit illustrates the history of pre-Roman and Roman Britain amplified by coinage found in Britain and in circulation at the time. Her major achievement is the completion of the cataloguing of potters' signature-stamps on plain and decorated samian ware. The total of 298 stamps registering 146 individual ancient potters, such as Bassus of South Gaul of the 1st century A.D. or Secundus of Central Gaul of the early 2nd century A.D., is an enviable number in any collection. In constant touch with Dr. Brian R. Hartley of the University of Leeds, England, the leading authority on samian ware in Britain, Miss Harle provided details and rubbings of all the signatures, now for the first time properly read and recorded, for inclusion in a new corpus of potters' stamps to be published in 1972.

Dr. J. Wilkinson, Research Associate in the Department, completed the study and recataloguing of the large and exquisite collection of Greek coinage (over 1600 pieces of gold, electrum, silver and bronze). In collaboration with Display General, a new setting was designed and work on the cases started. The compact wall boxes, provided with interior lighting and an alarm system, can – if ever necessary – without difficulty be transferred to another location. For his excellent and enthusiastic work, and the generous donation of his time and knowledge, we owe Dr. Wilkinson a great debt of gratitude.

In the Spring term Mrs. Leipen again taught a course on Greek terracottas to a University of Toronto Fine Art class, continued her work on Greek, Etruscan and Roman terracottas, and prepared a publication of Museum holdings in those fields. She visited and studied in the summer of 1970 the collections of terracottas and terracotta sculpture in the Museums in Athens, Corinth, Thera, Rome and vicinity, Naples, Pompeii, Palermo, Geneva, and

the newly installed collection of Etruscan sculptural and architectural terracottas in Copenhagen. Throughout the year she guided and supervised Miss Carol Prosavick, a graduate student in Museology. Miss Prosavick finished her assigned research project into the life and religion in Egypt under Roman rule as reflected in the extensive ROM collection of Romano-Egyptian terracotta statuettes. She completed the cataloguing and a final paper on the subject is in preparation. For the practical part of her project the student designed and set up an effective display of these terracottas in which such characteristic types as Isiac mother and child groups, temple dancers and musicians, votive and fertility figures, street beggars and animals are represented. For the summer of 1971 Miss Prosavick has been accepted as one of the students to work, under Professor J. Russell of the University of British Columbia, on the excavation of the Roman site at Anamurium in southern Turkey.

Mrs. Leipen was invited to give a paper at the Canadian Learned Societies 1971 meetings held at Memorial University, in St. John's, Newfoundland. The title of her paper, read to the members of the Classical Association of Canada, was "Reconstructing the Athena Parthenos." Earlier in the year her comprehensive monograph *Athena Parthenos – A Reconstruction* came out as a Royal Ontario Museum publication. We acknowledge, with thanks, that the cost of the extensive illustrations was covered from a Canada Council Grant to the Museum for its general programme of publications. Nearly 300 copies of the monograph have been sent on exchange to learned institutions and libraries at home and abroad.

In October 1970 a representative group of 18 Cypriote objects ranging in date from Early Bronze Age to Roman times and including pottery and glass vessels, terracotta and limestone figures, and a bronze weapon, was sent as a long-term loan to Brock University in St. Catharines to form a temporary nucleus of the



Venus Genetrix, Graeco-Roman copy of a Greek 5th-century B.C. prototype by Alkamenes, newly cleaned by Conservation Department.

newly-founded university museum. The festive opening, with addresses by the President of Brock University Dr. Gibson, the Classics Department Chairman Professor A. Kahn, and Mrs. Leipen was recorded by the local and Toronto press. They stressed and welcomed this type of collaboration among educational institutions in the province. In her address Mrs. Leipen presented an outline of Cypriote history and archaeology illustrated with colour projections of selected pieces from the ROM's large Cypriote holdings. She has been asked to serve on the planning committee for an international Cypriote symposium entitled *Cyprus: Work in Progress – Studies and Excavations* to be held at Brock University in the Fall of 1971 on which occasion the ROM will host a visit by and a reception for the members of the symposium.

Five pieces of Roman marble sculpture were lent to the Spring Flower and Garden Show held this year at the Museum. They were incorporated into the beautiful Historical Gardens displays and it was refreshing for once to see the figures of Cupid and Venus and Bacchus in the bosky type of setting which so properly suits them.

Our thanks go to Mrs. G. Kitching of the Members' Committee for her valuable help in cataloguing, filing and cross-indexing re-prints, pamphlets, dealers' catalogues and the like. Three other members of the Museum Touring Committee, Mmes. W. J. Armstrong, W. O. Randall and W. Wigle attended a series of informal gallery talks by the curatorial staff on the parts of the collections to be included in an expanded touring programme of Greek and Roman galleries (Roman Portrait Sculpture; Roman Daily Life; Roman Provinces, especially Britain).

The collections increased by gifts and purchases. Our thanks go to Mmes. R. van Kranendonk and J. R. Naylor for a gift of coins; to Mr. C. P. Green and Mrs. O. Dalglish for archaeological material from Roman sites in Britain (pottery fragments and construction nails); to Professor J. M. Cook of

Bristol, England, for 136 Roman and miscellaneous sherds from Troy and other sites in the Troad; Professor Elizabeth Alföldi for a Byzantine clay lamp and some dish fragments from Anamur, Turkey; and to Mrs. S. Zacks for 17 pieces of Roman glass and a Greek terracotta statuette of horse and rider. Among the purchases a group of 23 pieces of South Italian Greek and local Italian pottery, all from the region of Ortona and, thanks to the Director's Purchase Trust Fund, a Roman Republican terracotta portrait head of a man deserve special mention. After a lengthy cleaning operation carried out by Mr. P. Cox of the Conservation Department, during which a heavy marine incrustation was removed, the head emerged as a crisp and well-modelled work, clearly depicting a particular individual. Its acquisition is of major importance because of the rarity of its class, its artistic quality and excellent preservation, and the fact that it fills a chronological gap in our collection of Roman portraiture. A detailed publication of it by Mrs. Leipen is in preparation. During the year a number of distinguished scholars visited the collections and were provided with all the necessary working facilities. The University of Toronto Fine Art classes under Professors Shaw and Alföldi regularly used the collections in their courses and other universities increasingly used the Department's holdings.

After the Museum Board's meeting in March the Curator and the rest of the staff had the pleasure of entertaining the Trustees at tea served in the galleries. On that occasion the guests showed great interest in the new displays of glass and the Romano-British life and history. The staff were pleased to answer their numerous and pertinent questions.

Textiles Department

H. B. Burnham, *Curator*
Mrs. K. B. Brett, *Associate Curator*
Dr. Veronika Gervers,
Curatorial Assistant
J. E. Vollmer, *Curatorial Assistant*

Mrs. D. K. Burnham,
Research Assistant (P/T)
Mrs. Charlotte Zuppinger, *Technician*
Mrs. J. Cselenyi, *Junior Technician*
Mrs. Mary Holford, *Occasional Lecturer*

Mr. H. B. Burnham reports for our very active Textiles Department a year of accomplishment and progress with extensive additions to the collections. The policy initiated late in the spring of 1970 of reserving one of the two main departmental galleries for a series of changing exhibitions was launched during the summer with a display of quilts from Canada, the United States, England, Ireland and Germany arranged and mounted by Mrs. Burnham. In September followed an exhibition prepared by Mr. Vollmer of the decorative shawls that were fashionable wear throughout much of the 19th century. Examples made in India, Scotland, England, France, and China were all drawn from the Museum's collections, and it was the first opportunity to show many of them publicly.

To coincide with the Hungarian Gala Evening, the exhibition of shawls was replaced in the middle of October by a special display of Hungarian material arranged by Dr. Gervers and Mr. Burnham. Mainly of objects lent by members of the Hungarian community, their assembly was organized by Mrs. Dora de Pedery Hunt and supplemented in small part by examples from the Museum collection. Following the exhibition, the community presented to the Museum wedding dress of the 1840s, and a gala dress of the 1890s. We greatly welcome this kind of specialized interest and participation. In November and December, the collection of Spanish material generously given by Mrs. Edgar J. Stone was on display. Silks and church vestments from the 16th century onwards and examples of national costume from as early as the 17th century filled the gallery. Arranged by Dr. Gervers, this proved most popular.

During the first two months of 1971, a broad selection of accessions made during 1970 was shown in which exhibition all members of the Department co-operated. It embraced a wide range of material dating from the 9th century to the present, and from many parts of the world. Simultaneously, recently acquired Canadian textiles occupied the Ontario Gallery with interesting examples from Quebec, Ontario and the Maritime Provinces.

To coincide with the *Flower and Garden Show*, Mrs. Brett arranged a display of "Flowers in Textiles" drawn from many areas of the collection. This continued until May when both the main galleries were closed for alterations that should be completed by the end of July, 1971. By adding a mezzanine to the Costume Gallery for storage purposes, it is hoped that the terribly cramped working conditions within the offices may be temporarily relieved.

During the summer of 1970, Mr. Burnham travelled through southern Quebec and the Maritime Provinces in a search for material to fill gaps in the Canadian collection. Quilts from Nova Scotia and New Brunswick were added to the collection, and linens and blankets from Quebec in addition to a number of pieces of textile equipment that improved this aspect of the collection. During the same period, Mr. and Mrs. Burnham prepared the greater part of the text and diagrams for the major publication on Canadian textiles: "*Keep Me Warm One Night*"; *Early Handweaving in Eastern Canada*. This manuscript was completed at the beginning of November, and brings to a close the first important phase of the Textile Department's major research project over the past quarter century. Publication was originally planned to coincide with a special exhibition in the autumn of 1971, but this has proved impossible. It is hoped that this contribution to the cultural history of Canada will be available in 1972. No change has been made in the dates of the exhibition which will have the same title, derived from an overshot coverlet pattern found in Cape Breton. Details regarding publication, and preliminary preparations for the exhibition have occupied much time over the balance of the year.

On invitation, Mrs. Brett took part in the *Symposium on Indian Art* held at the Los Angeles County Museum in September where she presented a paper on "Sources of Indian Chintz Design for the European Market." This was followed by a visit to London for the opening of the special exhibition on East India Trade at the Victoria and Albert Museum. In conjunction with the exhibition, Mrs. Brett gave a lecture on Indian chintz, basing it on the world's two major collections, those of the Royal Ontario Museum and the Victoria and Albert Museum.

During the year, she continued the regular rotation of costumes on display in the galleries and also worked on a catalogue raisonné of the English embroideries in the ROM collections. In addition, she has prepared the groundwork for a study of eighteenth-century woodblock printed cottons with a view to writing a catalogue raisonné of the Museum's rich collection.

Dr. Gervers continued her investigations of the Roumanian material in the Amice Calverley collection. In August, 1970, she studied the related peasant costumes in the Ethnographic Museum in Bucharest, the various provincial and open-air museums in Roumania, examples and related material at the Victoria and Albert Museum, London. She has been able to confirm that the extensive collection of Roumanian material in ROM is probably the richest of its kind outside that country.

With the accession of the Hungarian szür-mantle illustrated in the Winter number of *Rotunda*, Dr. Gervers commenced an intensive investigation of the origins and diffusion of this type of garment. An Occasional Paper is being prepared and should be ready for publication at the end of 1971.

During the past year, Mr. Vollmer has carried through regular rotation of displays of textiles in the Indian and Far Eastern galleries, and in April put on a special display of Indian costumes and textiles from the collections to

coincide with the fashion show staged in the Armour Court by the Fashion Group of Toronto. It is hoped that when the Department receives the proceeds of this gala event it will be able to purchase a man's suit from England dating from about 1775, an elegant outfit made of corded coral red silk and lined with ermine.

In April, Mr. Vollmer visited Victoria for preliminary work on the catalogue of the Japanese exhibition to be circulated by the Art Gallery of Greater Victoria. This will be shown in Exhibition Hall late in 1972.

Mrs. Holford presented a course of lectures in the history of costume for students of Ryerson Institute of Technology, including three in the series given by Dr. Gervers and Mr. Vollmer. She also lectured at Seneca College. Mr. Burnham and Mrs. Brett gave lectures for students of the Fine Arts Department of the University of Toronto. Mr. Vollmer took over the course on Far Eastern art and humanities at York University in Dr. Shih's absence.

Mrs. Zuppinger continued her excellent work on the conservation and mounting of material in the collection. Mrs. Cselenyi has beautifully and carefully prepared much of the material shown in the various exhibitions and has also brought the finding lists of the collection up to date.

Mrs. Priverts has faithfully fulfilled her duties as Departmental Secretary, and in addition to all routine work, has cheerfully typed many pages of manuscripts, and the masses of labels entailed by the changing exhibitions. She will be sadly missed when she retires at the end of June after a decade of devoted service. In the beginning of 1971, she launched a campaign to gather for the Museum a representative collection of textiles which will preserve this aspect of Latvian cultural traditions. Many members of the Latvian community responded to her call and the

collection is of steadily growing importance. There are now upwards of 50 woven articles and well over 100 pairs of knitted mittens showing a great variety of patterns. The larger part of these were the gifts of Dr. K. Lesins of Edmonton whose wife was an outstanding expert in this field. The Department is most grateful both to Mrs. Priverts, and to all Canadians of Latvian origin who have given so generously. It is hoped that this collection will serve as a record of the contributions that the people of this small country have made to Canada.

Just short of 1,000 items were added to the Department collections during the year of which 800 were gifts. This continuing generosity of friends of the Museum makes it possible to improve the range and scope of the collections, purchases being limited to examples which can be obtained in no other way. With this flood of accessions, it is to the greatest credit to all members of the Department that they were able to number, catalogue and process all of these with constant good humour in the hopelessly cramped quarters in which they must work. By purchase, from the Director's Purchase Trust Fund, it was possible to add to the collections several lengths of 18th century silk and three dresses of the same period. Other 18th century material acquired included a panel of Indian embroidery finely worked in red silk on glazed cotton, a quilted silk bedspread, and a Berainesque chinoiserie chintz panel that dates from early in the century.

The Department also acquired a group of Central Asian costumes and textiles collected in Afghanistan. These begin to fill a gap in the representation of materials from that part of the world. Another purchase of mediaeval Islamic *tiraz* fabrics dating from the 9th century onwards improves the small group acquired several years ago. The outstanding single purchase was the Japanese temple banner of the Muromachi Period (1334-1567) described and illustrated in the Spring number of *Rotunda*. The ROM was most fortunate in being offered this unusual piece.

The collection of 19th century jewellery being assembled by the Director and the Curator and financed with the income from the Purchase Trust Fund continued to grow and improve. Towards the end of the year, a splendid silver brooch set with diamonds and with tremblant flowers was acquired, and an amethyst necklace and matching earring set with seed pearls. Both of these appear to be English, and date from around 1870. A gift from Mrs. Egerton Brown consisted of an enamelled and jewelled pendant of late renaissance date, and a contemporary linked enamelled and pearl necklace. An unexpected bequest from Helen S. and Henry M. V. Weller of Victoria included an enamelled locket attributed to Lepas of Paris, and the first three examples from the workshops of Carl Faberge to reach the Museum. These were illustrated in the Spring number of *Rotunda*. During the year, Mr. Burnham arranged a display of the jewellery, for the costume gallery, and another for the Indian gallery in specially designed cases. Some beautiful examples of Tibetan turquoise jewellery given by Mr. Henry R. Jackman, were included in this latter display.

Important additions were made to the costume collection, both of examples worn in Canada, and of *haute couture* dresses. In the former, an important gift was received from the Luther Holton family of Hamilton, and in the latter from Mrs. James A. Boylen, Mrs. Graham Morrow, Mrs. Saul Silverman, and Mrs. Frank Silverman. A collection of men's costume and accessories of the 20th century was the gift of Mr. J. C. Delworth.

For many years, the Toronto Diocesan Anglican Church Women have cared for a collection sent back to Canada by Anglican missionaries working in many fields: the Arctic and the Yukon, China, Japan, India, Africa, the Near East and Chile. Much of this reached them in the earlier years of this century, and could no longer be obtained in the rapidly changing world of today. The responsibility for the welfare of this material was heavy and, after discussion, they decided that the Museum should have the privilege of selecting the more important pieces for the collection. Mr. Burnham assisted by Mr. Vollmer choose about 500 items more than half of which have improved the representation of ethnic costume and textiles in the Department. The bulk of the other items went to the Department of Ethnology, with selected pieces to the Far Eastern and Education Departments. Over the years, the older collections of similar materials formed by the church colleges in the University have been entrusted to the Museum, and it is perhaps only fitting that the last of these missionary collections should also find a safe home in the Royal Ontario Museum.

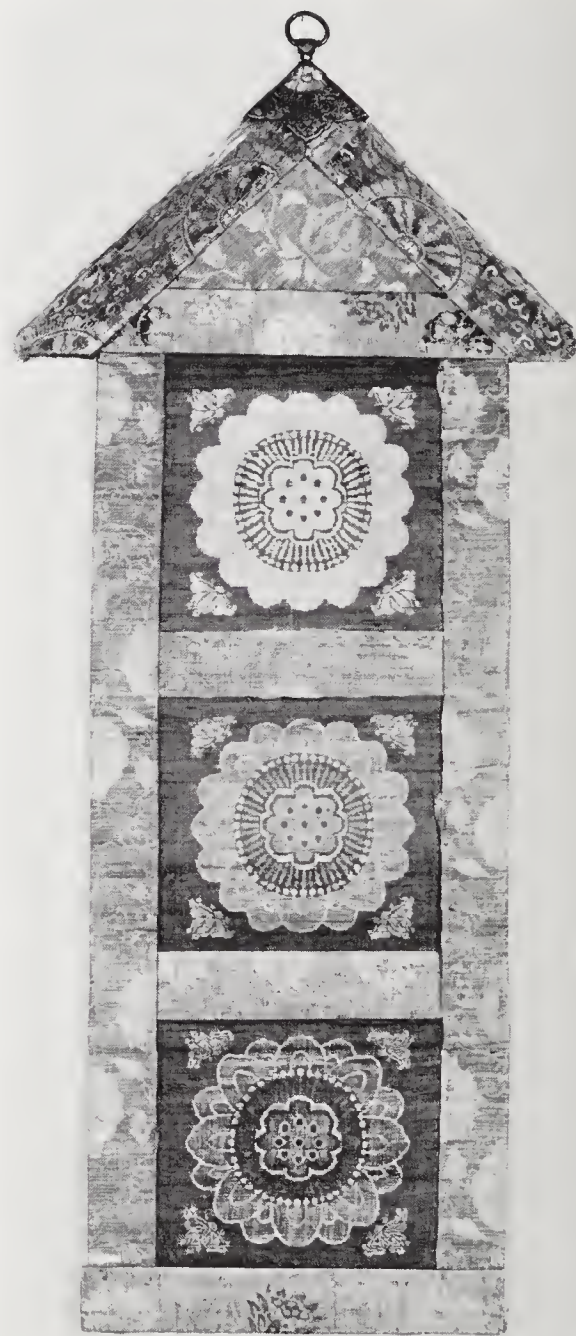
In memory of the late Gerard Brett, for a number of years Director of the Royal Ontario Museum of Archaeology, Mr. and Mrs. Edgar J. Stone presented an attractive embroidered coverlet made in England, and dated 1728. This is a notable addition to the collection of English embroideries. Another gift from Mrs. Stone to the Department was an Emperor's twelve-symbol dragon robe. This rare example of Chinese court dress probably dates from the Chia-ching period (1796-1821), and was illustrated in the issue of *Rotunda* for Summer, 1971.

Mrs. J. H. Crang and Mrs. Edgar J. Stone both made generous contributions towards the important collection of Canadian textiles to be shown this

autumn. Canadian material came from several sources, including an important gift from Mrs. Archie Lamont of blankets, coverlets, and textile equipment which she had inherited. These were all from the Belleville-Napanee area of Ontario, and included some of the equipment used by Peter Fretz, a part-time professional weaver working during first half of the 19th century.

A most important single gift was a tapestry donated by Mrs. Percyval Tudor-Hart. Designed by her husband, the Canadian artist, it depicts *Le premier péché* ("The First Sin") with Adam and Eve in an idyllic Garden of Eden. The first cartoons were prepared in 1926, and work commenced immediately. The greater part was woven by Léo Delmonte who had been a fellow student of the artist in Paris. After his death, it was completed by Rene Baudonnet in 1961. The artist did not live to see the work finished, and Mrs. Tudor-Hart prepared a number of the last detailed cartoons. We plan to display this unique piece in one of the European Galleries.

The last gift of the year was a panel of magnificent French brocaded silk of the beginning of the 18th century of the superb quality characteristic of Lyon. Its acquisition was made possible through the generosity of Mrs. W. B. Harris. To her, and to all the other many donors, the Textiles Department is genuinely grateful.



Japanese temple banner (*ban*) of the early Muromachi Period (1334-1567) with gilt bronze fitting not later than the Kamakura Period (1185-1333).

West Asian Department

Dr. T. Cuyler Young, Jr., *Curator*
Dr. L. Golombek (P/T),
Assistant Curator
Dr. L. Levine, *Assistant Curator*
Dr. J. S. Holladay, *Research Associate*

Dr. H. B. Schroeder, *Research Associate*
M. Hadaway, *Technician I*
P. Mitchel, Jr. *Technician*

In the past year the West Asian Department was once again engaged in a wide variety of activities on many fronts both within and without the museum.

Within the department the programme of expanding and cataloguing the photographic collections made much progress and for the first time we can report that catalogue up-to-date. Transfer of the data on the collections from the old "Yellow" catalogue books onto easily used 3" x 5" cards, at the same time correcting those data where necessary, continues, but much remains to be done. This time-consuming and somewhat thankless task must be completed so that the collection will become truly useable. When a museum department does not have accurate information on its collection readily available to all who have an interest in it, then that collection in a certain sense simply does not exist.

Much effort by all members of the department was perforce given to planning and organizing the 1971 season of excavations by the museum in western Iran. That project has grown to such a size that it now involves putting some 15 individual scholars from three different countries and five different institutions into the field in order to dig two archaeological sites.

Unfortunately, comparatively little gallery work got done. Planning for the Prehistory display (in co-operation with Dr. Millet of the Egyptian Department) became stalled for logistical reasons; and preliminary plans for a major reinstallation of the Palestine gallery had to be set aside because of rescheduling and altered planning on a broader museum-wide front. Minor changes were made in the Islamic gallery and certain new acquisitions were, of course, shown to the public for the first time. Considerable effort went into developing a revised label system for the Islamic gallery.

The staff of the department continued to be active in extra-departmental activities within the museum. Dr. Levine served on the Art and Archaeology Jubilee Display Committee. Dr. Young served on the Space, Library and Director's Advisory Committees and on the museum's Editorial Board. Dr. Levine spoke to a teacher's group for the Education Department and Dr. Young spoke to students under the same auspices.

Public lectures, the giving of scholarly papers and other forms of communication provided members of the department with several chances to reach the wider community outside the museum. Dr. Golombek read a paper on "The Cult of the Dead in Islam" at a meeting of the American Institute of Archaeology and lectured in the Beth Tzedec Museum series. Dr. Levine spoke in that same series, to the Forest Hill Study Group, to the Pioneer Women Study Group, at the Bialik Hebrew Day School and to a York University group in the museum. He read a paper, "The Early Dynastic Wall at Ur," at the meetings of the American Oriental Society and gave, by invitation, the keynote address at the meetings of the Association of Jewish Studies entitled "Jewish Studies and the Uses of Archaeology." He also appeared twice on Toronto television programmes. Dr. Young spoke to two neighbourhood associations and at the Whitney Grammer School, read a paper by invitation on "The Kassites in western Iran" to the American Oriental Society meetings, lectured on the ROM Iran Project at Yale University, attended three sessions of the Columbia University Seminar on the Comparative Archaeology of the Near East and the Aegean, and gave a paper by invitation on "Early Mesopotamian Urbanism" to the conference of the Archaeological Institute of the University of London (England) on "Urbanism and Ancient Settlement Patterns." He also was interviewed for a half hour ETV programme on the work of the department and participated as a regular panelist on the CBC national television series, "What on Earth."

Dr. Levine visited Iran, Israel and England in connection with planning for future field work in the Near East

and for research. Dr. Golombek attended a conference on Sassanian Silver in Cambridge, Massachusetts and made study visits to the Freer Gallery and the Textile Museum in Washington, D.C. Dr. Young, while in England for the London University Conference, attended an auction at Sotheby's and represented the museum at the formal opening of the new Assyrian galleries at the British Museum.

Ongoing responsibilities outside the museum also took staff time. Dr. Levine was elected to the Board of Trustees of the Association of Jewish Studies and as chairman of the Academic Review Committee of the Canadian Foundation for Jewish Culture. He continues as Editor and as a member of the Executive Committee of the Canadian Society for Archaeology Abroad. Dr. Young remains a Trustee of the American Institute of Iranian Studies (although Dr. Levine attended this year's annual meeting in Austin, Texas in his stead) and is Secretary-Treasurer of the Canadian Society for Archaeology Abroad.

Teaching is a vital part of the department's work. Dr. Golombek taught a graduate course and part of an undergraduate course in the Department of Islamic Studies, University of Toronto. Dr. Levine gave part of an undergraduate course (with Dr. Millet), parts of two graduate courses, and directed an M.Phil dissertation for the Department of Near Eastern Studies, University of Toronto. He also gave a Near Eastern language course in the university's Extension Department. Dr. Young taught part of an undergraduate course, a full graduate course and part of another graduate course for the Department of Near Eastern Studies, University of Toronto, and chaired that department's committee which revised the graduate programme in Near Eastern archaeology.

Office of the Chief Biologist

Dr. L. S. Russell, *Chief Biologist*
Mrs. S. Poray-Swinarski,
Artist-Craftsman (P/T)

Considerable research is in progress. Dr. Golombek is working toward publications on the Kuhistan area of northeastern Iran, architectural decoration in the Mongol and Timurid periods, and problems of Minai wares and their authenticity. In this latter effort she has been much assisted by the Conservation Department. Dr. Levine prepared a major museum publication on the Neo-Assyrian stele first discovered by the ROM Iran Project in 1965 and, as an outgrowth of his research on Neo-Assyrian western Iran, prepared several entries for the *Reallexicon de Assyriologie*. Dr. Young's research work in part remained focused on problems of population growth, environmental destruction and related social change in pre-urban and early urban Mesopotamia, and he prepared for publication the entry in the forthcoming new edition of the *Encyclopaedia Britannica* entitled "Iran, History of (Part 1)."

In late April Drs. Levine and Young and Mr. Peter Mitchel, Departmental Technician, left for Iran and five months of continued excavations in the name of the museum in the Kangavar Valley, central western Iran. (The other member of the expedition staff from the museum joined them slightly later – Mr. Claus Breede of the Office of the Chief Archaeologist has been with the Iran Project since 1969 as field photographer and architect.) Besides continued work at Godin Tepe, the project was expanded this season to include new excavations at the neighbouring site of Seh Gabi, which has important deposits dating to the 6th and 5th millennia B.C. This field work not only adds to the museum's reputation as a scholarly research institution and augments the West Asian collection on quantities and qualities which we could otherwise not afford, but also represents a significant facet of Canadian-Iranian cultural relations.

Thus in several ways our routine increasingly takes us beyond the museum's walls and makes the West Asian Department known to an ever wider public. Perhaps our goal should be to simply make the ROM a museum without walls.

The Chief Biologist, Dr. L. S. Russell, reports that he spent July and most of August 1970 on paleontological field work in southern Saskatchewan. Part of this consisted of supervising the operations at the Kleinfelder Farm site ("Mouse Mine"), near Rockglen. With a crew of four, and using an electrically driven rotary screen devised by Dr. Russell himself, some 30 tons of sand concentrate were separated. Its arrival at our crowded storage area was not without its problems! However on careful examination this may be expected to yield thousands of teeth and bones of small vertebrates, especially rodents. Remains of larger vertebrates, such as horse, camel, and mastodon, were also obtained at the Kleinfelder Farm site, as well as elsewhere in the Wood Mountain Formation (Upper Miocene).

His other field project was part of a continuing study of Late Cretaceous and Early Tertiary formations of southern Saskatchewan for comparison with those of Montana and North Dakota – a programme supported by the National Research Council of Canada. In addition to measuring sections and collecting fossils in Saskatchewan, Dr. Russell examined important areas in the Missouri River valley of eastern Montana and western North Dakota.

Research in the Museum was mainly on the revision of Part 2 of *Tertiary Mammals of Saskatchewan*, dealing with

the Cypress Hills fauna (Lower Oligocene). In addition to revision of the text, this involved taking over 300 special stereoscopic photographs of fossil teeth, some of them smaller than a pin head. The report was completed for publication in June. Another project, not yet completed, is a joint paper with Dr. R. E. Sloan of the University of Minnesota on the Upper Cretaceous mammal teeth from Scabby Butte, Alberta. Ancillary to the research projects was the development, in collaboration with Mr. Charles Shano of Toronto, of a machine to assist in the picking out of minute fossils from sand, such as Kleinfelder Farm concentrate. A belt driven by an electric motor slowly moves a narrow layer of sand through the field of a microscope, permitting the fossils to be picked out as they pass.

University teaching during the year involved a course in vertebrate palaeontology for third year students in the Department of Geology, and supervision of two graduate students preparing Ph.D theses on fossil vertebrates. In this teaching, the collections and facilities of the ROM were used extensively. Some lectures were also given in the Museology course. As part of his extra-mural teaching, Dr. Russell gave 20 evening lectures at Erindale College on his well known "sideline," "Crafts, Industries, and Artifacts of Colonial Canada." He lectured to various groups on the history of domestic lighting, including a class in the School of Architecture, Columbia University. Dr. Russell assisted in the organization for the annual meeting of the Society of Vertebrate Paleontology, held at the ROM, November 16th to 19th, addressed the Society on his work in Saskatchewan,

and took part in a symposium on "Extinction." On May 12th and 14th he represented the ROM at the Conference of Directors of Systematic Collections, at the University of Nebraska.

During the year Dr. Russell served as an Associate Editor of the *Canadian Journal of Earth Sciences*, and as Canadian Regional Editor of the *Society of Vertebrate Paleontology*. In April he was elected President of the Royal Canadian Institute.

At the end of June Dr. Russell retired as Chief Biologist, after a total of 18 years dedicated service with the ROM. The Trustees gave him the title of Honorary Curator, and he will continue his research projects in the Museum for at least another year.

Miss Liebeck performed her duties as Secretary to the Chief Biologist with efficiency and responsibility. In view of the imminent retirement of Dr. Russell and the dissolution of the Office of Chief Biologist, Miss Liebeck, although offered alternative positions, chose to resign from the Museum staff and obtain employment with the University of Toronto.

Mrs. Poray-Swinarski provided excellent art-work for illustrations and exhibits in the Life Science departments, especially those of Vertebrate Paleontology and Mammalogy.

The Director would like to add that Dr. Russell has been one of the most helpful of colleagues, ready to advise wisely and gently on all occasions and to represent the ROM with distinction at international conferences of scientists.



Dr. L. S. Russell searching sand concentrate for minute fossils.

Entomology and Invertebrate Zoology

Dr. Glenn B. Wiggins, *Curator*
Dr. David Barr, *Assistant Curator*
Toshio Yamamoto, *Curatorial Assistant*

J. Charles E. Riotte, *Research Associate*
Thomas W. Beak, *Research Associate*
Dr. Denton W. Crocker, *Research Associate*
Dr. Ralph O. Brinkhurst, *Research Associate*
Dr. F. P. Ide, *Research Associate*

Mrs. Pandora B. Buckley, *Technician I*
Anker Odum, *Scientific Illustrator*

Dr. Glenn B. Wiggins reports progress in the Department's various research programmes which, although not invariably all that we would like, is generally satisfying. In developing our public lecture course on invertebrate animals for a second year, he feels we have the basis for a significant contribution to the Museum's overall role in adult education. By contrast, the continued lack of gallery space in which to maintain permanent interpretive exhibits on invertebrates is an increasing frustration in any attempt to mount an active and integrated museum programme in this department. We must somehow find space to develop a permanent gallery on even a very modest scale. The Director is very conscious of the way this department is foiled in its ambition to instruct the public in a fascinating area of scientific knowledge.

One outstanding event of the past year is that the office space occupied by the Chief Biologist up to his retirement on 30 June 1971 has been assigned to this department. This will enable the establishment of a new section which should in time develop into a long-needed separate Department of Invertebrate Zoology. Our present department will then become the Department of Entomology and Arachnology. The opportunity to found this new section now, when space in the building is so terribly limited, is extremely important to this department and to the development of Museum work on living invertebrate animals. We are grateful for this gesture of confidence from the Trustees and Administration to enable us to use the space effectively for the enhancement of the total Museum programme in interpretive and research work.

The department concentrated its major field expedition during the year on the Prairie Provinces of Canada. Our truck

and laboratory trailer were on the road from July 7 to August 29, covering a total distance of 12,300 miles and reaching as far west as the Rocky Mountains at Banff. Dr. Barr and Mr. Yamamoto divided the supervisory duties of the work carried out mainly by students. Collections of the invertebrate fauna were made at 125 different sites, and larval specimens of a number of species reared to the adult stage to produce important associated material for the permanent collections. Records are maintained in such a manner that each community sample can be re-assembled from the research collection at any time, thereby making the material useful in ecological as well as systematic studies.

The major project of the Curator, Dr. Wiggins, continues to be preparation of the book *Larvae of the North American caddisfly genera*. Progress this year was somewhat slower than last, due partly to the fact that portions of the time of our illustrator, Mr. Odum, have had to be directed toward other projects in the department. Among these were several shorter papers by the Curator concerning new species and significant changes in the classification of Trichoptera, which are necessary prerequisites to completion of the book. These are listed in the Bibliography. One paper describing a new species of the caddisfly genus *Oligotricha* from Japan was the outcome of co-operation with Dr. S. Kuwayama of the Hokkaido (Japan) National Agricultural Experiment Station. Observations for the Curator's study of the fauna of temporary vernal pools has continued, aided substantially by the work of Mr. Ian Smith, a graduate student working under the Curator's supervision in the University of Toronto.

Through assistance provided by Mr. Yamamoto, several other significant advances were made in the research programme on Trichoptera. Larval-pupal-adult associations were established for 22 species in Western Canada on the departmental field expedition, including

the long-sought proof of the larva and pupa for the genus *Amphicosmoecus*. Rearing of larvae continues to be carried on throughout the year, thanks to the low-temperature rearing room installed in the department a few years ago. Exploratory programmes also began on the use of electrophoresis in detecting comparative protein differences in various groups of Trichoptera, and on the chromosome morphology characteristic for different groups, using facilities of the new Laboratory of Analytical Systematics. Mr. Yamamoto began the compilation of a catalogue of published data on North American Trichoptera – another requisite for completion of the book on caddisfly larvae. In August Dr. Wiggins was able to make an extended series of observations and collections dealing with the life histories of several species of Trichoptera in Minnesota, during which period he was a member of the summer faculty of the Lake Itasca Biological Station of the University of Minnesota. This occasion also provided a valuable opportunity for students to test the caddisfly larval keys in manuscript form before their publication.

The Rev. J. C. E. Riotte, one of the Department's long-term Research Associates, continued his work on Lepidoptera. His field work was again based at the Queen's University Biological Station at Chaffey's Locks, Ontario where, with the aid of a student assistant, Mr. Lubomir Luciuk, he operated a collecting and rearing program from 15 May to 23 August. By rearing larvae from eggs taken from adult moths of known species identity, he obtained complete life-history associations for 12 species of the family Geometridae, and for several other species in the Drepanidae, Notodontidae, Arctiidae,

Sphingidae and Lasiocampidae – none of which were previously represented in the collection. His special study of the tussock moth genus *Orgyia* advanced by his rearing a new species of this genus in North America. Important diagnostic characters were revealed in the eggs of these species by the ROM's scanning electron microscope. Father Riotte did some further work on his *Anisota* paper, and saw others through publication. His re-organization of the Lepidoptera collection continued. Among other accomplishments the collection of African hawkmoths made by T. M. Shortt was mounted and identified.

In invertebrate zoology, Dr. Barr's large work on the ejaculatory complex in water mites was completed during the past year and submitted for publication as a Museum Contribution. He is now producing a paper on methods of studying water mites, and a study of the genus *Hydrachna* (s.s.). He was successful in obtaining research grants from the Department of University Affairs, and from the Canadian National Sportsmen's Show. This support enabled him to continue systematic studies in several genera and a large-scale rearing program to yield new evidence on the detailed life-histories of water mite species. Approximately 500 lots of water mites from southern Ontario were reared through to the adult stage during the past year. Data from this rearing programme are already being

incorporated into one study on the larvae of the family Hydryphantidae. Much of the backlog of reared material was identified and added to the collection; a system of storage and retrieval of literature data on water mites involving the new computer facilities was initiated; standardized techniques for the examination of mite larvae with the new scanning electron microscope were developed; and progress was made in developing programmes for quantitative systematic studies on water mites using the new computer.

Some of the participants in the Museum's course *Invertebrates: man's unseen associates* on a field outing, with Dr. G. B. Wiggins.



Dr. Wiggins was invited to serve as a member of the summer faculty of the University of Minnesota's Lake Itasca Biological Station for five weeks to guide the work of students in aquatic entomology and conduct his own studies on Trichoptera. There he presented a special lecture to the general staff and student body of the Station dealing with his study of temporary vernal pools.

Dr. Wiggins' cross-appointment as Professor in the Department of the University of Toronto continued, and a graduate student, Mr. Ian M. Smith, continued Doctoral studies under his direction. Dr. Wiggins continued to serve as co-ordinator for the N.R.C. Negotiated Development Grant in systematic and evolutionary zoology, which was awarded to the University Department of Zoology, in co-operation with the Museum. During the academic year he presented a lecture on aquatic insects to the third year ecology students in the Department of Zoology.

Dr. Wiggins gave one lecture to the monthly meeting of the Toronto Field Naturalists on the natural history of temporary vernal pools, and led a field outing on fresh-water invertebrates for the same organization in May.

In connection with our survey of household spiders in the city and environs, Dr. Barr took part in radio and television interviews. He continued his interpretive writings on invertebrate animals and had three of these published during the past year (see Bibliography).

All members of the staff participated in the Museum's *Romarama* III night, interpreting the work of the Department to the public.

Identifications of Trichoptera, water mites and Lepidoptera continued over the past year for various scientific studies in progress in North America. Information service to the public, to industries, and to government agencies continued as before. During the past year we received 600 inquiries by telephone, mail and personal visits. Loans of our

research materials to workers in other institutions continued over the past year as before, and students continued to come to the Department to study portions of our collections.

The department's general lecture series, *Invertebrates – Man's Unseen Associates* was offered again this year, October to December, but expanded to ten sessions, including one field trip (see illustration) and two laboratory sessions in which participants used binocular microscopes to examine a rich variety of invertebrates for themselves.

The lectures were given by Dr. Wiggins (5) and Dr. Barr (1), with Mr. Yamamoto as demonstrator. All three took part in the laboratory sessions and the field trip. Dr. G. K. Morris of the Department of Zoology gave one guest lecture. The response of the public to this series was again encouraging, and we hope to develop and improve the course in the years ahead as a good example of the kind of participating experience in adult education which we believe is a major Museum role in this important field.

A significant portion of the equipment budget this year was used to purchase new binocular microscopes. These included three new microscopes for the staff, and three for use in our lecture series and other demonstration functions.

The water mite Library of Dr. Ian Efford, Department of Zoology, University of British Columbia, was purchased.

This year we were able to add a new technician's position to our staff. This has been occupied by Mrs. Pandora Buckley, a graduate in biology from the University of the West Indies, Jamaica, who assumed a great deal of the preparatory work done by Dr. Barr and Mr. Yamamoto, thus freeing them for other more advanced work.

Mr. Yamamoto continued to make steady progress with the identification of the large amount of material accumulated from past field expeditions, but not yet incorporated into the

collection. He set up a new photographic slide file, and added many slides taken by himself.

Mr. Odum, our scientific illustrator, continued to work closely with the Curator in preparing illustrations for his book on the larvae of North American Trichoptera. He also illustrated papers on moths for Father Riotte. He prepared the illustrations for Dr. Barr's interpretive articles on water beetles and snow flies. His own interest in interpretive writing has continued, and during the past year two of his articles were published: "*Case of the caddis*" in the *Ontario Naturalist* and "*The magnificent mud-dauber*" in the *Canadian Audubon*.

Important accessions included an estimated 7,000 specimens from 125 stations collected by the staff on a field expedition to the Prairie Provinces of Canada; and from field work at Queen's University Biological Station – many lepidopterous larvae reared through all in instars, 3,000 adult insects; and several thousand water mites including many reared series from field work in various parts of southern Ontario.

The Department received by gift from Mr. W. Plath 150 Noctuid moths from western Ontario, and from Prof. W. V. Baker a collection of insects and other invertebrates from Jamaica. R. Heitzman gave 30 Notodontid moths from Texas. G. Hesselbarth gave 70 butterflies from Spain; and we purchased 8 African and South American beetles.

Department of Geology

Dr. W. M. Tovell, *Curator*

Dr. J. H. McAndrews, *Associate Curator*

Dr. G. Norris, *Research Associate*

Prof. P. A. Peach, *Research Associate*

Mrs. J. L. Charing, *Senior Technician*

Mrs. M. L. Scheffel, *Technician*

Peter Tewiss, *Preparator*

Mrs. D. Siddiqi, *Junior Technician*

The Curator, Dr. Walter M. Tovell, reports with satisfaction that his Department, at long last, appears to be taking on the aspect of a well-rounded Museum Department. The activities throughout the year maintained a balance between educational pursuits, research, and the building of collections.

The Department mounted two special exhibits in the third floor rotunda. The first of these, perhaps not too strikingly, depicted old and new Geological Maps of Canada. However, the second was an extremely interesting exhibit, organised by Dr. McAndrews, on the Limnogeology of the Great Lakes. Some of the work of the Geobotany Laboratory is now on permanent exhibition in the new Hall of Vertebrate Evolution and shows how fossil pollen can be used to reconstruct the environment of Pleistocene mammals such as the mastodon. The inter-relation of departmental expertise is particularly welcome.

As in previous years, Department personnel took part in a great number of public lectures. The Curator continued his work at the College of Education and the Department of Geology in the University of Toronto. For the latter, he was once again Chief Instructor at their Field Camp at Tweed, north of Belleville, Ontario. He also answered numerous inquiries regarding geology and earth science programmes throughout the Province of Ontario in elementary, high school, and adult education. Dr. McAndrews taught "Plant Geography and Palynology" for the University of Toronto. He also gave a special lecture in the ROM Evolution series, on "Fossil Plants."

The Department was particularly pleased when the Geological Survey of Canada, through Dr. C. F. M. Lewis and Dr. George Hobson, inquired if, in association with The Great Lakes

Institute, it would undertake certain responsibilities with respect to a major exploration programme of the Georgian Bay Basin. Since the Curator and Dr. McAndrews had both already participated in work in this area it was a pleasure to accept. The work involves 30 days of cruising on Georgian Bay, in which they will use geophysical and coring equipment.

The most stimulating research work of the year was carried out on the sediments of Crawford Lake near Hamilton. Such sediment shows annual layers much like tree rings, which not only contain fossil pollen but also well preserved leaves and even fossil feathers, the latter being the first of such finds from Ontario. A motion picture was made of the sampling operation, by Dr. C. McGowan, and shown in a public lecture. If it had the financial and technical resources the Museum could provide many such interesting subjects for films. It is most unfortunate that it has neither.

Once again, the Department organized, with the ROM Members' Committee, a very successful tour of the Niagara Escarpment between the Forks of the Credit and the Beaver Valley. Forty-nine members participated.

The process of recataloguing, the work of Mrs. Jean Charing, Senior Technician, started several years ago in an effort to organize the old Geology collections and to make an accurate estimate of the collections contained. This work is now approaching completion with some 8,000 specimens catalogued. Thus the bulk of the cross-referencing and recataloguing has been done. It is now possible to say that more than 50% of the material in the old catalogues is missing, or at some time has been discarded and never recorded as being discarded. Also, a quantity of improperly labelled materials and rocks with no information have either been disposed of or offered to the ROM Department of Education for teaching purposes.

With the end of the recataloguing in sight, we can now give attention to some of the new collections which need preparation for cataloguing. About 2,000 new specimens have been added to our catalogued petrographic collection from sites as far apart as Sudbury in Ontario and Mount Hekla in Iceland.

About 130 pollen reference slides were added to the collection in addition to 275 slides obtained from the University of Michigan.

The Department's two Research Associates, Dr. R. Loeffler and Dr. Thane contributed invaluable work. The staff and volunteers, Sally McAndrews and Alice Kenahan all worked in crowded and often stifling uncomfortable quarters to contribute to a full and productive year.

The Museum is grateful for support for the work of the Geobotanical Laboratory from the National Research Council, the Geological Survey of Canada, the Department of Energy, Mines and Resources, the Canadian National Sportsmen's Show and the Quetico Foundation. Without these funds, it would not be possible to operate effectively what is one of the few such services in Canada.

Department of Ichthyology and Herpetology

Dr. W. B. Scott, *Curator*
Dr. E. J. Crossman, *Curator*
Dr. A. R. Emery, *Research Associate*

Dr. J. B. MacInnis, *Research Associate*
Mrs. I. Radforth, *Research Associate*
Peter Buerschaper, *Senior Technician*
E. Smith, *Technician I*

Dr. W. B. Scott reports that field work by the Curators was curtailed through the need to complete the manuscript on the *Freshwater Fishes of Canada*. However, P. Buerschaper and Eldon Smith made a number of local field trips to obtain specimens for illustrations or to collect specimens from areas not well represented in our collection (e.g., Rice Lake). Collections were also made during and after the lamprey larvicide program conducted by the Department of Fisheries and Forestry on Duffin's Creek, Ontario County.

The extensive manuscript (approximately 2,400 manuscript pages and 400 illustrations), prepared as a Bulletin of the Fisheries Research Board of Canada and entitled *The Freshwater Fishes of Canada*, was completed. This has been the major research project within the Department for about three years. The manuscript was submitted to the editor in March 1971, and should appear in print in 1972. The Department can now settle down to other important work it has been forced to neglect.

One pleasant and satisfying by-product of this project was the increased recognition of artistic talent within our own ranks. Mr. Anker Odum, Department of Entomology and Invertebrate Zoology, and Peter Buerschaper did the majority of the artwork. Terry Shortt prepared two fine field sketches in colour during an early field trip to Hudson Bay, and four black-and-white wash drawings of Ontario fishes were prepared many years ago by Shelley Logier, who retired from the ROM in 1961. The Fisheries Research Board selected a dust jacket design, in colour, prepared by Peter Buerschaper. The whole project was supported by a contractual arrangement with the Fisheries Research Board. However, as Dr. Scott ruefully observed, one often enters into such undertakings with enthusiasm but without a full realisation of the amount of work entailed. Nevertheless it is a major national achievement.

Dr. Scott spent the month of August, 1970, at the Biological Station, Fisheries Research Board of Canada, St. Andrews,

New Brunswick, working on euryhaline and anadromous fishes. In June at the annual meeting of the American Society of Ichthyologists and Herpetologists in Los Angeles, he was elected President-Elect to serve as president in 1973. Dr. Crossman carried out research at the Freshwater Biological Association Laboratory at Windermere, England and also visited the Freshwater Biological Association Laboratory, Wool, Dorset, where he collected specimens of freshwater fishes.

R. E. Zurbrigg carried forward the work on Atlantic lanternfishes, family Myctophidae, supported by N.R.C. funds and also submitted for publication a manuscript entitled: "A biological investigation of *Myctophum punctatum* populations in the Northwest Atlantic."

After many months of exploratory research, a co-operative project involving the occurrence of mercury and other trace elements in vertebrate animals is being conducted by this Department and the Departments of Mineralogy and of Vertebrate Paleontology.

Dr. E. J. Crossman continues his long-term project on the biology, systematics and phylogeny of esocoid fishes with the support of a three year N.R.C. grant and the summer assistance of Mr. Stephen Campbell.

He completed a study of the chromosomes and deoxyribonucleic acid fishes (with Dr. R. J. Beamish and Mr. M. J. Merrilees, Department of Zoology, University of Toronto) and after a year's break, reinstated the inventory of the fishes of Quetico Provincial Park, a co-operative project with the Ontario Department of Lands and Forests Inventory Section, and with the support of the Quetico Foundation. Data from the summer of 1971 should complete the requirements for the preparation of a *Handbook of the Fishes of Quetico Park*.

Specimens continue to arrive from many parts of the world. During the period covered by this report approximately 750 lots of fishes, amphibians and reptiles were received, and approximately 7,000 specimens were shelved in the research collection.

Noteworthy in this year's accessions were: a large series of Ontario fishes resulting from lake inventory and reclamation studies by the Ontario Department of Lands and Forests, a collection of coral reef fishes from the Bahama Islands, two collections of Pacific Ocean fishes, via Hawaii, many collections of Atlantic marine fishes via the Fisheries Research Board of Canada, specimens of the exotic species of Pacific salmonid fishes recently introduced into the Great Lakes, an extensive series of catostomid fishes from the Quebec Wildlife Service, Montreal, a large collection of fishes from deep waters of lakes in Ontario, Quebec and Maine, and a skin of one of the last timber rattlesnakes caught in the Niagara Glen. This species has not been observed in Ontario for over 25 years.

We loaned research material to 22 organizations and gave material surplus to our own needs to eight institutions.

In August and September 1970 in furtherance of the Director's wish that the Science Departments become more involved in temporary exhibitions, a display of paintings of freshwater fishes by P. Buerschaper was exhibited in the third floor rotunda.

Mr. Buerschaper designed and prepared with the assistance of Eldon Smith, an exhibit on aquatic environments for the Conservation Council of Ontario at the Canadian National Sportsman's Show, Toronto, in March 1971 and in April 1971, Mr. Buerschaper displayed five wildlife paintings at the annual meeting of the Federation of Ontario Naturalists in Ottawa.

Both Curators lectured, in the Department, to groups of University students, high school students and high school teachers on the role of a natural science department in a museum, on ichthyology, and related subjects. In addition, they supervised the studies of five advanced students and gave many scholarly and popular lectures.

Requests for information and identification services from the public at large, and for professional services from universities and organizations continue to grow and, at times, tax our resources to the limit. In this respect, the Department's resources certainly meet a need which cannot be satisfied elsewhere.

The discovery of relatively high mercury levels and DDT levels in fishes has stimulated greatly increased interest in museum collections, since it has been found that specimens collected many years ago can be analyzed for mercury content, thus reflecting environmental conditions at the time of collection.

Wherever possible, the Department has been pleased to co-operate with other universities, federal, provincial and private research agencies, but will not risk compromising collection material or data.

Services include loans and gifts of specimens for research and study, and identification service to individuals and organisations (e.g.: Fisheries Research Board of Canada, Ontario Department of Lands and Forests and many universities, fellow scientists, teachers, and interested individuals).

In particular, the introduction of exotic salmonids into the Great Lakes has created an increased demand for identification services.

The Curators continue to referee and serve on examining committees for students, scientific manuscripts and to review publications for scientific journals – all as part of their general professional responsibilities. They also provide professional services for seven learned societies.

Peter Buerschaper carries out analysis of specimen of freshwater fish.



Department of Invertebrate Paleontology

Dr. D. H. Collins, *Curator*

John Monteith, *Curatorial Assistant*

Peter H. von Bitter, *Curatorial Assistant*

Dr. C. R. Barnes, *Research Associate*

Prof. Madeleine Fritz, *Research Associate*

Dr. A. Brinckmann-Voss, *Research Assoc.*

Dr. J. B. Waterhouse, *Research Associate*

Dr. Gerd Westermann,

Research Associate

Huibert Sabelis, *Technician I*

Mrs. L. Russell, *Technician I*

Dr. D. H. Collins reports that a micro-paleontologist, Peter H. von Bitter, joined the Department in November to collect and curate for this very important branch of paleontology. A Canadian, Peter von Bitter came to us from studies in Canada, Kansas and Germany preceded by a term as Curator of Geology at the Nova Scotia Museum. Mrs. LaVerne Russell also joined the Department, replacing Carol Johnston who transferred to the University of Toronto. With a permanent staff of six, Invertebrate Paleontology has reached its 1935 strength when Professor Parks was Director of Paleontology. Unfortunately, with larger collections, the Department now has less than half of the space it enjoyed in 1936! Lack of space is now critical; a major increase is needed as soon as possible if only to maintain the present modest growth of collections.

John Monteith continued reorganizing the research collections, answering queries and identifying the many specimens brought in by the public. Peter von Bitter began a pilot programme for a computer-based storage and retrieval system. New marine invertebrates in the Gallery aquaria included the first display in Canada of a number of spectacular crinoids or "feather-stars," descendants of the beautiful "stone-lilies" found in 450,000,000-year-old rocks in Ontario. The aquaria now provide a complete marine environment for their inhabitants. Their behaviour was observed by Huibert Sabelis and published in popular shell and aquarium journals. Classes in geology and invertebrate zoology from the Universities of Toronto, Waterloo and McMaster visited the ROM specifically to see the marine invertebrate aquaria. These are very popular also with the public and more

are planned for next year. At long last, the gallery audio-visual aids have been replaced, modified and are operating satisfactorily.

The Curator had a busy year, in addition to his Museum work, teaching a course in Geochronology and Evolution at the Erindale Campus of the University of Toronto, collecting marine invertebrates in Florida with Huibert Sabelis, invertebrate fossils of Pennsylvanian age in Illinois, of Ordovician and Silurian age on Manitoulin Island with Peter von Bitter, and of Ordovician age from Craigleith, Ontario and the islands in the North Channel of Lake Huron off Thessalon, Ontario with John Monteith. Material from the last area is of great historical interest because it includes cephalopod specimens from a locality gathered in 1820 by J. J. Bigsby, British Secretary to the Boundary Commission, and never collected since. These were some of the first fossils collected and described from Ontario. Dr. Collins presented a paper on "The Micro-structure and Function of the Connecting Ring of *Nautilus*, *Spirula* and Fossil Nautiloids" at the Annual Meeting of the Geological Society of America in Milwaukee.

The Curator co-ordinated and delivered two lectures in a series of six Sunday lectures on "Evolution - 71" in the Museum theatre from February to April. Total attendance was a gratifying 750. ROM Curators delivered five of the six lectures. Dr. Collins also co-ordinated a successful grant application to the Department of University Affairs for "ROM Research on the Ontario Environment."

Professor Madeleine A. Fritz, Research Associate, interrupted her bryozoan studies to write a biography of William Arthur Parks, Ph.D., LL.D., F.R.S., 1868 - 1936, the first Director of the Royal Ontario Museum of Paleontology and with whom she was closely associated

for many years. Professor Parks was an outstanding figure in Canadian science during the first third of this century. Professor Fritz has done us a great service in reminding us of the distinction Professor Parks brought to himself, the University of Toronto and the Royal Ontario Museum. Her other scholarly publications are listed in the Bibliography, as are also those by Dr. Gerd Westermann, Research Associate, Dr. C. R. Barnes, Research Associate, and Dr. Anita Brinckmann-Voss, a new Research Associate.

Terry Fletcher of the Institute of Geological Sciences in Leeds, England, was appointed a Research Associate. He is currently studying the Cambrian stratigraphy and paleontology of south-eastern Newfoundland. His association will maintain our strong interest in and excellent collections of Cambrian invertebrates from the Maritimes.

Altogether it has been an active and successful year for the Department. The major problems, as in most departments, are lack of both space and staff adequately to collect, curate and display modern and fossil marine invertebrates for the public, students and scholars. Both need major expansion in the near future to prevent stagnation and a decline in quality of service to the public.

Department of Mammalogy

Dr. R. L. Peterson, *Curator*
Dr. J. R. Tamsitt, *Associate Curator*
Miss J. Eger, *Curatorial Assistant*
S. Brock, *Research Associate*

Mrs. N. Curry, *Research Associate*
Dr. M. B. Fenton, *Research Associate*
Dr. D. Valdivieso, *Research Associate*
J. Williams, *Research Associate*
J. Borack, *Senior Technician*
B. Herbert, *Technician II*

The tempo and scope of the activities of the Department of Mammalogy under Dr. R. L. Peterson continued to increase during the past year. Fewer structural alterations to their quarters and fewer expeditions to foreign lands enabled the staff to devote more time to pressing curatorial and research activities.

The collections increased by 3,711 specimens (3,454 bats). Of these 3,049 were purchased, 420 were staff-collected, 58 were gifts and 43 exchanges. The additional bat specimens involved 12 families, 72 genera, and 160 species and included a most impressive number of species that are either extremely rare or even entirely new to science.

University commitments were particularly heavy during the year. In his course in Mammalogy, Dr. R. L. Peterson had 18 students, a number that greatly exceeded the comfortable capacity of our cramped physical facilities. He also served on the supervising committees and examining committees of a number of graduate students.

Under the direction of the Curator, Mr. Geoffrey E. Turner, in October 1970, completed and successfully defended his M.Sc. thesis entitled *Sexual dimorphism in eleven species of New World and eighteen species of Old World bats of the family Molossidae (Chiroptera)*. He then accepted a post as Research Assistant supported by a National Research Council Grant to Dr. Peterson. His appointment made possible an accelerated programme of departmental research. As a result, a number of manuscripts are nearing completion. Editorial preparation of the manuscript by Dr. C. G. van Zyll de Jong entitled *A Systematic Review of the Nearctic and Neotropical River Otters* was completed and submitted to an outside referee for appraisal as an ROM

Life Sciences Contribution. Study and identification of the New World bat collection of the Institut Royal des Sciences de Belgique was completed during the year, and most of the collection was returned to Belgium.

An important phase of our operations year has been the integration of specimen data into a computerized storage and retrieval system. With the advice of the computer operator, Mrs. P. McGann, we were able to modify a versatile programme to suit our specific needs. The practical applications of this system are many, including total recall of desired combinations of data and the generation of specimen catalogue cards. Our ultimate goal is to have data from all specimens available on computer tape and to this end we have completed 1500 records.

A special precision device to measure morphological characters was designed and is in the process of assembly. The apparatus includes a special Wild Stereomicroscope equipped with trinocular photography head and camera; a Leitz precision measuring and rotating stage equipped with two IKL micrometer heads; an IKL Microcode system with dual display unit (digital readout) and a Ruscom designed interface connected to a Teleprinter for automatic print-out as well as punched paper tape to allow for the direct transfer of data to our computer storage and retrieval system. To our knowledge, this will be the most powerful, accurate, and versatile system of its type yet devised for measuring and recording data from mammals. We are anxiously awaiting its completion.

The Curator, in addition to attending professional associations, gave a number of lectures during the year, completed his tenure as Editor for the Life Sciences Publications but continued as Associate Editor for Mammalogy of the *Canadian Field-Naturalist*.

The Associate Curator's research on the taxonomy, comparative biochemistry, and ectoparasites of bats continued with the support of the National Research Council and the Canadian National Sportsmen's Show. During the year he co-authored a chapter of a book and

four other publications. It was particularly satisfying to see the publication of the book *A Tropical Rain Forest*, edited by Dr. H. T. Odum and containing a chapter by the Associate Curator and Research Associate Dr. Dario Valdivieso on bats and their ectoparasites. A noteworthy event of the year was the appearance of the book *The Frogs of Colombia* by the late Dr. Doris M. Cochran and Dr. Coleman J. Goin, who honoured the Associate Curator by naming a new subspecies of frog as *Eleutherodactylus latidicus tamsitti*. Our colleagues in the arts do not seem to enjoy such scholarly privileges!

In his capacity as Associate Professor of Zoology of the University of Toronto, Dr. Tamsitt continued as Group Coordinator of the committee supervising the National Research Council-financed Laboratory of Experimental and Analytical Systematics and also assisted in the Comparative Anatomy and Mammalogy courses. After serving for two years as Associate Editor of the *Journal of Mammalogy*, he relinquished the position in June with some relief – over 400 manuscripts were processed during his tenure. His respite from editorial duties was short-lived, however, and in January he was appointed to serve for a two-year term as one of the two editors of the ROM Life Sciences Publication Series.

Bats were the objective of Dr. Tamsitt's field work in Puerto Rico and the Virgin Islands in May. Although the success of the trip was marred to some extent by heavy rains, he obtained considerable data on hematology and blood parasites as well as various life stages of two species of listrophorid mites that appear to be new to science.

Miss Judy Eger, Curatorial Assistant, continued a full schedule including a graduate programme in which she is undertaking a revision of the bat Genus *Eumops* and the processing of the continuing flow of incoming new material. She participated in four television programs, including "On Location" and "What on Earth."

The Research Associates of the Department continued their activities in various parts of the world and contributed considerable material to the collection. Dr. M. Brock Fenton completed an expedition to Ghana and brought back an impressive number of bat specimens, including three extremely rare species never before taken in that country. Dr. Dario Valdivieso collected bats and obtained blood samples in Colombia for use in continuing research with the Associate Curator on the serum proteins, enzymes, and blood parasites of bats, and Stanley E. Brock and John G. Williams continued to provide specimens from Guyana and Africa. Mrs. Noreen Curry continues her interest in and support of the Department's research expeditions and plans for future projects are under consideration.

All other staff members have been well occupied. Jim Borack and Brian Herbert struggled against the heavy load of new specimens in need of preparation and Paul Geraughty and Sophie Poray prepared a high volume of illustrations during the year.

Joan Rutherford and Judy Ryan were of great assistance during the summer of 1970, and Miss Rutherford has returned for the summer of 1971. The help of T. Don Hammell, who was

appointed a Research Assistant in the summer of 1970, resulted in the acceleration of several projects now nearing completion. Mrs. Marion Pinkerton, of the ROM Members' Committee, contributed much assistance throughout the year.

An unusually large number of research workers from both Canada and the United States visited the Department, reflecting the growing reputation of the Museum and the importance of our collections. Large numbers of specimens were both received and shipped out on loan to and from other museum collections around the world.

The prospects of an ROM building programme give hope for the future, not only for an expansion of the Department from its present, crowded quarters but even more urgently to the renovation of its Victorian-vintage exhibits which give cause for despair. For the first time we look forward to being able to create, together with related departments, a proper, attractive, and modern gallery of mammals which will be of service to young and old visitors alike.

McLaughlin Planetarium

Dr. H. C. King, *Curator*
Dr. T. R. Clarke, *Assistant Curator*
Norman Green, *Assistant Curator*
R. J. Ballantyne, *Curatorial Assistant*
H. C. Creighton, *Curatorial Assistant*

Mrs. J. M. A. Surridge,
Planetarium Assistant
F. W. Jessop, *Production Supervisor*
L. B. Kistritz, *Technical Co-ordinator*
C. F. Gomes, *Physical Plant Engineer*
W. R. Magill, *Technician*
W. B. Ireland, *Graphic Artist*

Dennis Halley, *Junior Technician*
R. L. O'Neill, *House Manager*
Mrs. D. DeVille, *Head Hostess*
D. J. Fitzgerald, *Lecturer (P/T)*
L. Clark, *Lecturer (P/T)*
J. Kemp, *Lecturer (P/T)*

Dr. Henry C. King, Curator, is happy to report a satisfactory year of progress and development in the Planetarium. Particularly important were the steps taken to implement the Curator's policy of increasing the scope, variety and degree of sophistication of visual and acoustical effects in the Star Theatre. Since this could not be done by extending the original and well-worn electronic control-system, Mr. Jessop designed and supervised the construction in the Planetarium workshop of a completely new system. Part of this was installed early in 1971, together with electrical circuits to serve additional outlets in the cove of the projection dome. The total cost will be well below that of commercially-built units, and the first phase of the new equipment has already more than repaid all the work and time involved. Although the lecturer is still kept active at the console during the presentation, he can now command many more sequences of effects than before.

During the year the Planetarium offered six different public shows. *The Planet Venus* planned by Dr. Clarke posed many problems. Until American and Soviet spacecraft recently probed the atmosphere of Venus, little was known about the physical nature of the nearest and brightest of all the planets. Dr. Clarke prepared an historical introduction, outlined various early ideas about the probable nature of the planet's surface, and gave a lucid synopsis of the results obtained by radio telescopes and space probes. Few other planetaria, if any, have made Venus the sole subject of a public show. Encouraged by this success, Dr. Clarke took responsibility for planning *Giant Planets*. Once again a brief historical introduction, this time narrated on tape by the Director, paid rich dividends. Later in the show, as the story of the discoveries of Uranus and Neptune unfolded, visitors heard the simulated voices of Herschel, Adams, Leverrier and Galle. They were introduced, among other things, to Jupiter's

Great Red Spot and magnetosphere, saw the rings of Saturn from an imaginary location within the rings, and had a view of Neptune as it might be seen from Triton, one of Neptune's two moons.

In *From Here to Infinity*, Mr. Green had the difficult task of condensing the complex story of old and new ideas about the universe of stars into a mere 50 minutes. By constant pruning and the careful selection of material he enabled visitors to travel in imagination over intervals in space and time so vast that not just the earth but the solar system, and then the entire Galaxy, shrank almost to insignificance. If those who saw this show gained no more than an appreciation of their own stature and their minuteness in the material universe, their visit would have been well worthwhile.

During the Christmas season the traditional Planetarium show *The Christmas Star*, devised by Mr. Ballantyne, gave further insight into the age-old problem of the nature of the Star of the Nativity. No great changes were made to the original format, introduced in December, 1969, but every opportunity was taken to improve the visual effects and associated background music. Mr. Ballantyne also prepared *Drama of the Stars* in which his abilities as a producer of planetarium shows led to the creation of several novel sequences. At the outset he used taped voices to recount early legends about the constellations. The Director told the old Greek story of Orpheus, Eurydice and the Lyre. The Canadian Indian spokesman, Duke Redbird, wrote and narrated a Blackfoot Indian story about the Great Bear and the stars of the Big Dipper. By researching the event of supernova 1054 A.D., Mr. Ballantyne included an impressive and highly informative account of this star and its subsequent history. He even introduced a thunderstorm, complete with sheet- and fork-lightning effects, which was generally acclaimed an audio-visual high-light of the show, especially by young visitors. One lady remarked to the Curator that she enjoyed the storm more than his comments about the stars! Another asked if we had imported the storm from the U.S.A. She was most

surprised to learn that it was an entirely man-made Canadian product!

The attendance at 897 public shows during the year was 135,400, roughly 42% of the maximum attendance possible. Most major planetariums consider an average of 40% of capacity attendance an acceptable annual figure, but the one realised is disappointing. The record of weekly attendances showed the same trends as those of the previous year, namely, a high level in August and September, followed by a general decline during October, November and December, and then a fairly steady level through to mid-June. The unusually severe winter was undoubtedly partially responsible for many of the low evening attendances during November through February. Particularly noticeable were the declines during the week of the Flower and Garden Show, the days of major sporting events like the Stanley Cup and Grey Cup, and weekends in the early summer when the weather took sudden turns for the better. As in the previous year, no significant increases in attendance accompanied the introductions of new shows. These and other factors underline once again the need for carefully planned and suitably-orientated publicity, especially since so many other attractions have been established in the city since the Planetarium first opened. The public shows given in the Star Theatre are the Planetarium's main contribution to the cultural life of the community. A great amount of time, effort and skill goes into their preparation. It is therefore disconcerting, to say the least, to hear from outsiders the general comment: "What's the present show about? I hear it's excellent. I've been meaning to come but somehow never get the time. Is it still difficult to obtain a seat?" A major advertising campaign is planned for 1971-72.

During the school year the Planetarium offered the special student show *Explore the Universe*. The presentation, planned by Mr. Ballantyne with the assistance of other members of the Curatorial Staff, was seen by 90,500 teachers and students at the average rate of about 230 persons a session. As in earlier years, and in accordance with the wishes of the various participating School Boards, the aim has been to introduce students to astronomy and space science rather than to provide detailed instruction in those subjects. Those who attended the 390 school sessions had a dramatic introduction to some of the ways in which the telescope has opened up new vistas in space and time.

Important contributions to the Planetarium's educational programme were the Star Theatre lectures on naked-eye astronomy arranged and given by Dr. Clarke to university and post-secondary school students. A total of 1,200 students attended from the University of Toronto, Erindale College, Scarborough College, York University, University of Waterloo, University of Guelph, Atkinson College and George Brown College. Dr. Clarke also produced and gave two demonstrations on astronomical navigation for the Toronto Power Squadron. Also important was the series of lecture demonstrations devised and given by Mr. Creighton to high-school students of grades 11 to 13. This was arranged in consultation with the teachers concerned. In addition, he used the resources of the Star Theatre to assist groups of students involved in the 'Space and Man' syllabus, and gave several extensions of public shows for students and teachers with areas of special interest in astronomy. To test the requirements and reactions of teachers and students to the standard school show he prepared and distributed a questionnaire to visiting school groups. The

results not only provided valuable guidelines but were a source of great encouragement to the teaching staff.

During the year the Curator expressed to the Curatorial Staff his concern that no effective research was being done in the Department. Also, that he has been unable to prepare and publish anything of academic consequence since his arrival in Canada five years ago. One result was that Mr. Green undertook responsibility for the minutiae of administration, while Dr. Clarke supervised the preparation of scripts and the development of methods of producing planetarium shows. In consequence the Curator was able to assess the value and explore the possibilities of research in astronomical mechanisms. The end product will be a book on the history and development of anaphoric and astronomical clocks, geared astrolabes, armillary spheres, planetary machines, telluriums, orreries, planetariums and similar devices used in demonstrational astronomy. To sample the field of interest, he inspected the collections of early scientific instruments in the Museum of the History of Science, Oxford; the Science Museum, Maritime Museum, and British Museum, London; the Whipple Museum, Cambridge; the Zwinger Palace, Dresden; the Musée des Arts et Métiers, Paris. He also obtained photographs of some 70 important artifacts, commenced work on primary source material, and studied planetary machines of the 18th century in considerable depth.

In August the Curator attended the Congress of the International Astronomical Union at the University of Sussex, England, was the guest of Carl Zeiss VEB, Jena, and visited the Tautenberg Observatory and the Zeiss Planetarium, West Berlin. In October he was one of the guest speakers at the Conference of American Planetarium Educators at Michigan State University, and in January, guest speaker at the re-opening of the Charles Hayden Planetarium, Boston. He assisted and examined graduate students in the Institute of the History and Philosophy of Science

and Technology of the University of Toronto, gave an open lecture on Astrology at the Abrams Planetarium, Michigan, two similar lectures for interested staff and students in the University of Toronto, and had several lively skirmishes with astrologers on radio and tv. He also gave 30 lectures in two separate evening courses on Astronomy and the History of Cosmology in the Continuing Education Programme in Extension. He wrote the copy for three planetarium booklets: *The Planet Venus*, *The Star of Bethlehem*, and *From Here to Infinity* to accompany the respective shows.

Dr. Clarke, cross-appointed Special Lecturer in the Department of Astronomy, University of Toronto, has become interested in devising a young children's show for the Star Theatre and in the possible use of computers to produce graphic material. In the absence of the Curator he acted as host during the visit of astronaut James Lovell to the Planetarium on the 19th of August. He gave freely of his time and knowledge to the researchers of the Ontario Educational Communication Authority, but, disappointingly enough, neither the Planetarium nor the ROM received any credit for this service.

Mr. Green has continued to be active in teaching. He addressed 14 groups on the subject of the Planetarium and various aspects of popular astronomy. He gave three short courses on astronomy for the Extension Department of York University, the Etobicoke Board of Education and the North York Board of Education. Among other activities, he contributed eight articles on astronomical topics for the revised International Standard Bible Encyclopedia.

Through the initiative of Mr. Ballantyne, the Planetarium acquired on permanent loan a Black Brant IVB high altitude rocket from Bristol Aerospace (1968) Limited. Thanks to Display General this major Canadian space research vehicle is now on display in the corridor connecting the Planetarium and the Mineralogy Gallery. Another valuable acquisition, obtained by Mr. Creighton, was an early Canadian standard station-clock, on permanent loan from the Canadian National Railways. Included among purchases were two Dollond telescopes, a geodetical quadrant of the early 18th century, and several 17th century portable sundials and drawing instruments. Early scientific instruments are now becoming very expensive but we hope to build a small representative collection.

Mr. Creighton has continued to represent the Planetarium in the affairs of the Council of the Toronto Centre of the Royal Astronomical Society of Canada. Despite difficulties in obtaining suitable volunteers to supervise the optical workshop, members of the Centre have produced an impressive number of telescope mirrors. They have shown more interest than hitherto in the growing resources of the Planetarium Library, and have given staunch support to the public shows in the Star Theatre.

Credit must be given to all members of the technical staff. Without their efficient and enthusiastic support it would have been impossible to make such great strides in the standards of show production. Credit is due also to all members of the House Staff. Many of them, the hostesses in particular, are kept in almost constant contact with the public, and by their happy approach and attractive appearance do much to keep the image of the Planetarium bright and clear. The Planetarium is both an academic and a business operation, with the two so closely interwoven that any changes in the efficiency of one invariably effect the other. It refuses to lower its standards to a level of gimmickry or popular sensationalism which would betray the seriousness of the subject.



Astronaut James Lovell surrounded by youthful admirers during his visit to the McLaughlin Planetarium.

Department of Mineralogy

Dr. J. A. Mandarino, *Curator*
Dr. R. I. Galt, *Assistant Curator*
Dr. F. J. Wicks, *Assistant Curator*
Mrs. S. Naldrett, *Research Assistant*
G. G. Waite, *Research Associate*

E. B. Tiffany, *Research Associate*
U. Grassi, *Chief Technician*
Mrs. C. C. Peat, *Technician I*
D. R. McKinnon, *Junior Technician*
Mrs. J. J. Galt, *Junior Technician*

As is appropriate in a country like Canada which relies heavily on the mining industry, Dr. Mandarino's Department is strong and active. This year brought many changes to it. The untimely death of Dr. V. B. Meen, Chief Mineralogist, saddened all his colleagues in this Department and throughout the ROM. With his death, the Office of the Chief Mineralogist disappears and the Department of Mineralogy assumed the functions of that office.

1970-71 was a year rich in acquisition. 586 specimens, including nine species new to the collection, and gifts were received from individuals and institutions too numerous to list.

However, by far the most important acquisition by the Department is the Frohberg Collection. Mr. Frohberg, an Honorary Life Member of the ROM since 1952, maintained a keen interest and donated many notable mined specimens. His collection was, without doubt, the finest in private hands in Canada. His death in August 1970 was a sad loss. This collection, consisting of several hundred fine display specimens, many reference specimens and numerous duplicates for exchange, was acquired through the generosity of the International Nickel Company of Canada Limited. To the Directors of INCO we again extend our most sincere thanks for their support. In addition, his many friends have set up a special trust fund – the M. H. Frohberg Memorial Trust. The interest from it will, in time, enable the Department to purchase fine quality specimens similar to the type of material Dr. Frohberg acquired. Most of the outstanding display specimens will be registered and exhibited by the fall of 1971.

The public identification services answered in person and by letter eighty-four individuals, submitting one to five specimens each for identification. An interesting outcome of one such submission was the identification of the rare mineral *weddellite* from an Ontario locality. Of further interest is the fact that the only other occurrences of the mineral are below the surface of the sea (off Antarctica and Florida), whereas the Ontario locality is at an elevation of about 1,000 feet above sea level.

The Department supplied small fragments for research projects, the farthest request for such assistance coming from New Zealand.

The Mineralogy Department is happy to serve others in the Museum. For instance, several "jades" from the Far Eastern Department were identified by X-ray diffraction as various other minerals. The Department also assisted in several identifications of gems for the Textiles Department and the European Department. Assistance was rendered also to the Greek and Roman Department. As usual, the Conservation Department made use of our X-ray diffraction and X-ray spectrographic equipment.

Staff members gave five scientific papers and 16 talks to amateur groups. They attended eight professorial meetings and engaged in 17 field expeditions.

Important acquisitions in equipment include our fourth X-ray generator and a new Leitz research microscope. The X-ray generator extends our capabilities in the field of X-ray diffraction. The microscope is being used mainly by Dr. Wicks in his studies of serpentine minerals. A special heating stage for this microscope will be used to learn more about the relative stability of the serpentine minerals at high temperatures. The heating stage was purchased from a Department of University Affairs grant awarded to Dr. Wicks.

Mr. Alberto Hurtado, Senior Technician, resigned to return to his native Argentina. Mrs. Cynthia Peat has taken over his former duties in X-ray diffraction. Mr. J. Galt was hired on a part-time basis which subsequently became full-time. We were fortunate also in obtaining the part-time services of Mrs. Sylvia Naldrett as a Research Assistant. Messrs. G. G. Waite and E. B. Tiffany who were Research Associates in the Office of Chief Mineralogist kindly consented to serve in the same capacity in our Department. The staff made five contributions to learned journals, which are listed in the Bibliography, and Dr. Mandarino among other distinctions was elected Vice-president of the Mineralogical Association of Canada.



Fine specimen of gypsum in the display collections of the Department of Mineralogy.

Department of Ornithology

Dr. J. C. Barlow, *Curator*
Dr. D. M. Power, *Assistant Curator*
J. A. Dick, *Curatorial Assistant*
Mrs. C. M. Goodwin, *Curatorial Assistant*
R. D. James, *Curatorial Assistant*

Dr. W. W. H. Gunn, *Research Associate*
Rev. R. C. Long, *Research Associate*
Dr. J. D. Rising, *Research Associate*
Dr. H. G. Savage, *Research Associate*
Miss V. I. Klemm,
Research Associate (P/T)
G. B. Murphy, *Technician I*

L. Ferguson, *Junior Technician*
D. Hughes, *Student Assistant (P/T)*

Dr. J. C. Barlow reports that the highlight of his year was the acquisition of numbers of birds either completely new to the Museum or new to some part of the Departmental holdings. He is especially pleased with our Caribbean and Latin American ventures which yielded more than 150 species not previously represented in our skin and anatomical collections. Several species, including the Slaty and Dwarf vireos of southern Mexico, have not until now been available anywhere as skeletons or spirit specimens. The Department's expanding field activities are particularly important in that they provide valuable training for graduate students who we hope will be Canada's next generation of avian biologists and a wealth of material new to the Museum, the Province and the country, and in some instances to science.

Obtaining skeletal material is doubly important. On one hand it forms permanent reference for the identification of Amerind midden material. Such material is now being directed to Dr. Savage by professional and amateur archaeologists from all over North America. On the other, it provides valuable comparative material for investigations in evolutionary rates in birds. To the Curator's knowledge, the ROM has the only bird department currently placing such special emphasis on the active acquisition of birds for skeletal and "spirits" preservation.

Field work both for research and acquisition played a prominent role in Departmental activities this past year. The Department is especially grateful to the National Research Council for funds which financed most of the activities. As well as our usual sites in central Ontario, west Texas, southeastern and central Arizona, and coastal California, we were able to collect generally and to study vireos, warblers

or Savannah Sparrows in Jamaica, Grand Cayman Island, Puerto Rico, St. Vincent Island, Costa Rica, British Honduras and in the Mexican states of Durango, Sinaloa, Jalisco, Oaxaca, Nayarit and Mexico as well as in the territory of Baja California and on Guadalupe Island. In Canada we worked in British Columbia on Vancouver Island, in Ontario at Moosonee and Winisk in the far north and in New Brunswick and Nova Scotia. Laboratory work must, of course, follow field activities. An analysis, employing multivariate statistics, of evolutionary rates and phyletic relationships in vireos and finches comprised a major portion of our Museum-based research. The variety of sources whence data of systematic import are derived has greatly expanded in this past year. The Curator initiated detailed analyses of the vocal repertoires of the Gray, Bell and Slaty Vireos. Films of courtship behaviour in the Red-eyed Vireo (*Vireo olivaceus*) were analyzed and sequentially drawn for publication. Other research involved a colorimetric analysis of the dorsal plumage of the Red-eyed Vireo (with N. Williams) which was published in the *Canadian Journal of Zoology* in March 1971. The karyology of five taxa of vireos and two of *Empidonax* flycatchers was studied in collaboration with Mr. G. Shields using the ROM-housed laboratory of Analytical Biology.

Dr. D. M. Power, Assistant Curator, continued his studies of the evolution and ecology of certain island bird species. A morphological study comparing populations of the House Finch (*Carpodacus mexicanus*) from the southern California mainland and from nearby Santa Cruz Island led to a paper published in the May issue of the *Canadian Journal of Zoology* in which he suggested factors likely responsible for the divergence of the island birds from their mainland relatives. He completed investigations of interactions of warblers (Parulidae) in eastern deciduous forests and a paper is in press in the journal *Ecology*. In collaboration with Dr. R. I. C. Hansell (University of Toronto) a statistical, zoogeographic analysis was made of the affinities of West Indian islands based on the breeding distribution of bird species.

Dr. Howard Savage, Research Associate, continued his reconstructions of ecological and ethnobiological associations of past centuries.

Rev. P. C. Long, Research Associate, completed his study of the African Violet-backed Starling (*Cinnyricinclus leucogaster*) and his field study and banding of the American Robin (*Turdus migratorius*) in Ontario. He also analyzed colour banding data obtained for the Eastern Phoebe (*Sayornis phoebe*) and the Bluejay (*Cyanocitta cristata*) relating to movement and behaviour.

Dr. James D. Rising, Research Associate, continued his investigation of the systematics of Savannah Sparrows (*Passerculus sandwichensis*) and of the evolutionary rates of hybridizing orioles (Icteridae) in the Great Plains of North America. A major paper concerning the latter research appeared in *Systematic Zoology*.

Mr. Ross D. James, Curatorial Assistant, continued his graduate study at the University of Toronto and his research on the vocalizations, behaviour, and ecology of solitary (*V. solitarius*) and Yellow-throated (*V. flavifrons*) Vireos. Mrs. Carol Goodwin, Curatorial Assistant, continued behavioural observations of Elf Owls (*Micrathene whitneyi*) in her basement laboratory.

Each month the Department handles dozens of inquiries from the general public either as phone calls, letters or through personal visits. School children seek information about species of birds or groups of birds for school projects. People of all ages have specific questions which usually fall into a general enquiry, "which kind of bird have I just seen?" Visitors come to the Department to see some of our seldom viewed rarities or to look at specimens to confirm sight identifications which they made in the field. Colleagues in other disciplines and services who are preparing general articles on birds for popular consumption often seek confirmation of details of the information they are presenting. Par-

ticipants in the nest records scheme write regularly asking for more cards upon which to report observations of nesting birds.

A number of artists regularly borrow study skins to be used as subjects of paintings. Most noteworthy among them are the ROM's own Terry Shortt, certainly one of Canada's premier bird artists; Glen Loates, the best of the country's younger artists, whose paintings of wildlife and wildflowers are familiar to readers of the *Toronto Star*; Barry MacKay, a talented young artist who now appears regularly on the "Uncle Bobby" television show and who has this year collected birds for us in Costa Rica; and Frank de Matteis, a most promising teenager who is our number one customer.

Members of the Department contributed a formidable list of scientific papers to learned societies which are listed in the Bibliography. During the year the most important acquisitions of the Department were 250 birds from Guyana, 80 birds from Grand Cayman Island, 66 birds from Puerto Rico, 7 birds from Jamaica, 159 birds from British Honduras, 93 birds from St. Vincent Island, 183 birds from Mexico, 50 birds from California and Mexico, 102 birds from Texas and Arizona, 60 birds from Mexico, 47 birds from Mexico, 30 birds from New Brunswick, 67 birds from Vancouver Island, B. C., 9 birds from Ghana, 118 birds from New Brunswick.

This was a significant year for the growth of the collections, with 3,300 bird specimens being added to the research collection. Special emphasis was placed on enlarging the anatomical collections. We have approximately 4,300 complete skeletons of which 1,800 were obtained in the past year. The latter figure includes

180 species new to the collection among which are species which have not previously been available as skeletons in any museum.

Mr. James surveyed the collection of specimens preserved whole in spirits which he curates and reported 2,300 specimens. Included among material new in 1970/71 are several species not previously available anywhere in this form of preservation. As important as the size of this collection is the fact that all the specimens have been secured since January of 1966, and thus are "fresh." Most were choice, undamaged individuals at the time of collection and of great importance for studies of muscles and other soft anatomy. The collection also includes several thousand bird stomachs for studies of feeding habits of various species, all fully documented.

A collection of approximately 28,000 ft. of field tapes of songs of vireos has been accumulated which includes songs and other vocalizations of 30 taxa of vireos featuring several species and subspecies whose voices have not been recorded previously.

Over 1,000 specimen records have been prepared for the computerized storage and retrieval system now in operation at the ROM.

Dr. George K. Peck has continued in his volunteer capacity as the organizer and impetus behind the Ontario Nest Record Scheme. He undertook field work on nesting habits of birds in various parts of Ontario and elsewhere in Canada. This scheme relies almost entirely on amateur observers for its data and now comprises more than 35,000 individual entries.

The several collections of the Department were used by researchers from 15 other museums, universities and government agencies and by visiting classes from the universities of Toronto and Guelph.

Grants in support of research came from the National Research Council of Canada, the Department of Zoology Pure and Applied Research Fund to support graduate students, from the Canadian National Sportsmen's Show and the Department of University Affairs. Without their welcome support the Department's work would have been seriously curtailed.

Dr. Barlow, in his capacity as Associate Professor of Zoology, taught a graduate/undergraduate course in systematic ornithology, as well as part of an undergraduate course in animal biology in the Department of Zoology at the University of Toronto. He supervised the research of one M.Sc. candidate and three Ph.D. candidates.

Dr. Power, in his capacity as Assistant Professor of Zoology, contributed several lectures to the course in systematic ornithology and to the course in systematics and phylogeny at the University of Toronto. He also supervised the research activities of two M.Sc. candidates. Dr. Rising, as Assistant Professor of Zoology, supervised the research activities of two Ph.D. candidates. Departmental staff are directly supervising nine graduate students.

Staff activities included an informal bi-weekly night-time seminar at the Museum in the academic portion of the year in advanced ornithology and evolutionary biology for graduate and undergraduate students in zoology and eight lectures on ornithology as part of the natural science course of the University of Toronto Extension service.

Department of Vertebrate Paleontology

Dr. A. G. Edmund, *Curator*
Dr. C. McGowan, *Assistant Curator*
Dr. C. S. Churcher, *Research Associate*

Dr. J. L. Kay, *Research Associate*
Dr. T. S. Parsons, *Research Associate*
Gordon Hammond, *Research Assistant*
Gordon Gyrmov, *Senior Technician*
H. R. Vanstone, *Technician*
E. Davis, *Junior Technician*
B. Smith, *Junior Technician*

The most important event of the year was without doubt the opening of the new Hall of Vertebrate Evolution. This marks another important step in the rejuvenation of the galleries which, for lack of funds, were so long neglected. It consists of three sections – Introduction to Vertebrate Paleontology, Evolution of the Horse and Man, together with examples of fossil faunas and examples of extinction, and finally a section on the Marine Reptiles of the Mesozoic era. The most striking section of this new exhibit is an underwater scene consisting of two giant mosasaurs and a pliosaur which, illuminated by eerie light coming from the surface of the sea above, appear to be effortlessly swimming. This display should make a fitting introduction to the dinosaurs which will be featured in the adjacent gallery now under construction. The new Hall of Vertebrate Evolution was formally opened on January 25th by the former Director of the Museum, Dr. W. E. Swinton and a large audience of members attended.

Naturally this effort absorbed most of the energies of the Department. In co-operation with the Department of Display General, Dr. Edmund and Dr. McGowan completed the research required for authentic reconstructions, poses, backgrounds and labels. The long and painstaking mounting of the skeletons and the preparation of much of the background was accomplished by departmental technicians under the able supervision of Gordon Gyrmov. The diorama backgrounds and arrangement of the tarpit group were the result of Paul Geraghty's artistry.

A re-examination of the exhibition budget in the fall of 1970 compelled us to reduce the temporary technical staff by four. Fortunately one of these, Mr. Gordon Hammond, was appointed to the permanent staff of this Department. Two others found employment elsewhere in the ROM and the fourth is now a technician in the Paleontology Department at the Provincial Museum and Archives of Alberta in Edmonton.

Dr. Chris McGowan was promoted to the position of Assistant Curator.

To assist the regular staff during the summer months, several high school students were hired early in June. They are paid a small honorarium but we hope that their more permanent reward will be mainly in the experience gained from working with the collections and equipment. The Museum, we must say, also gains from contact with students. The students were divided into four teams. One team left for field work in Saskatchewan on June 21st and another is assisting in the preparation of new specimens for display and in the dismantling of old exhibits. A third group, under the direction of Miss Mary Brady, a very enthusiastic university student, expects to complete the preparation and cataloguing of the modern osteological reference collection. The fourth team, supervised by Gerald Proverbs, will rearrange, rehouse, and check the cataloguing of the large reserve collection stored in the basement. This project has been rendered especially pressing because of loss of storage space elsewhere in the building and of specimens removed from display in the course of gallery rebuilding. This "taskforce" method of using students seems to be working very well.

It is my sad duty to report the death of Dr. J. LeRoy Kay on May 6, 1971. He had been a Research Associate of the Department for several years, and greatly assisted our field activities in Utah.

Because of the urgency of the gallery renovation programme, the staff could undertake no direct involvement with field work. However, Mr. Paul Ramaekers, a doctoral candidate, returned to the Big Horn Basin of Wyoming and obtained a large and well-documented collection, mainly of small mammal teeth of Eocene age. Mr. Mark Wilson, also a doctoral candidate, continued his collecting of Tertiary fishes in British Columbia with satisfactory results. Both plan to return to their respective areas in the summer of 1971. Graduate student Raymond Brousseau, accompanied by a volunteer fellow student, made a fine collection of Devonian fishes from the Escuminac beds near Maguasha, on the Bay of Chaleur, Quebec. They will return there also in 1971 and plan to produce a coloured film record of their work.

Dr. L. S. Russell's exploitation of the sand quarry by means of a mechanical sifter has been described in *Rotunda*. Fifty-four boxes of fine gravel containing small bones and teeth were brought back to Toronto. A fraction of the material has been sorted, revealing a good diversity of fauna, and several boxes of concentrate have been exchanged with other institutions.

In addition to the materials listed above, there have been several important accessions. A fine specimen of *Proteosaurus platyodon* was purchased from a collector in Dorset, and is being prepared for display. Two collections of excellent fossils from Florida were donated by Mrs. Margaret C. Thomas and by Mr. Roy Burgess. Their generosity is greatly appreciated.

The Department is still receiving skeletons of modern African vertebrates collected by Mr. George Hyslop. Where appropriate, certain of these specimens are transferred to the Departments of Mammalogy and Ornithology. Unfortunately, upon his return from Africa in the late spring of 1970, Mr. Hyslop died of malaria. The Museum, and especially this Department, grieves the loss of a true friend and benefactor.

The total number of catalogued fossil specimens is now 7,958 of which 154 were added this year. A large proportion of this confirms material collected by Professor Phillip Smith in Nubia, and under investigation by Dr. C. S. Churcher, Research Associate.

As with field work, research also has been largely curtailed because of the gallery rebuilding programme. Dr. Edmund hired two University of Toronto students to assist during the summer of 1971 with his research in the sequence and rate of tooth replacement in living reptiles and amphibians. C. McGowan has continued his investigations into the ichthyosaurs, with particular reference to fore-fin form and function. A joint project with the Department of Mineralogy, into the chemical changes occurring during the preservation of

bone, is continuing. These two projects are supported by the Department of University Affairs.

Mr. L. Kisko, under the supervision of Dr. C. S. Churcher, has almost completed his doctoral thesis on the anatomy and taxonomy of the dire wolves from Talara, Peru. The Peruvian specimens show only slight differences from those of California, and neither population is very different from certain populations of living timber wolves.

Several major items of equipment were installed. To assist in the fabrication of steel frameworks for the dinosaur skeletons, the department purchased a 300-ampere A.C.-D.C. arc welder. A hydraulic iron bender and portable crane, both sharing an electric pump, aid in forming and erecting the steelwork.

To withstand the extreme windstorms of the prairies, four tents were custom-made for field work. These replace tents blown apart during the rigours of the last three summers.

Thanks to Display General, the office area has benefited by the replacement of inefficient files, furniture, etc. with modern and versatile units. New files and bookcases were installed in the curator's office and lab area.

Two microblasters were installed in the preparation lab. These miniature sand-blasters are most useful for uncovering delicate fossils, such as fish. The existing twin "Airbrasive" unit has been requiring frequent servicing, but will continue in service along with the two new single units.

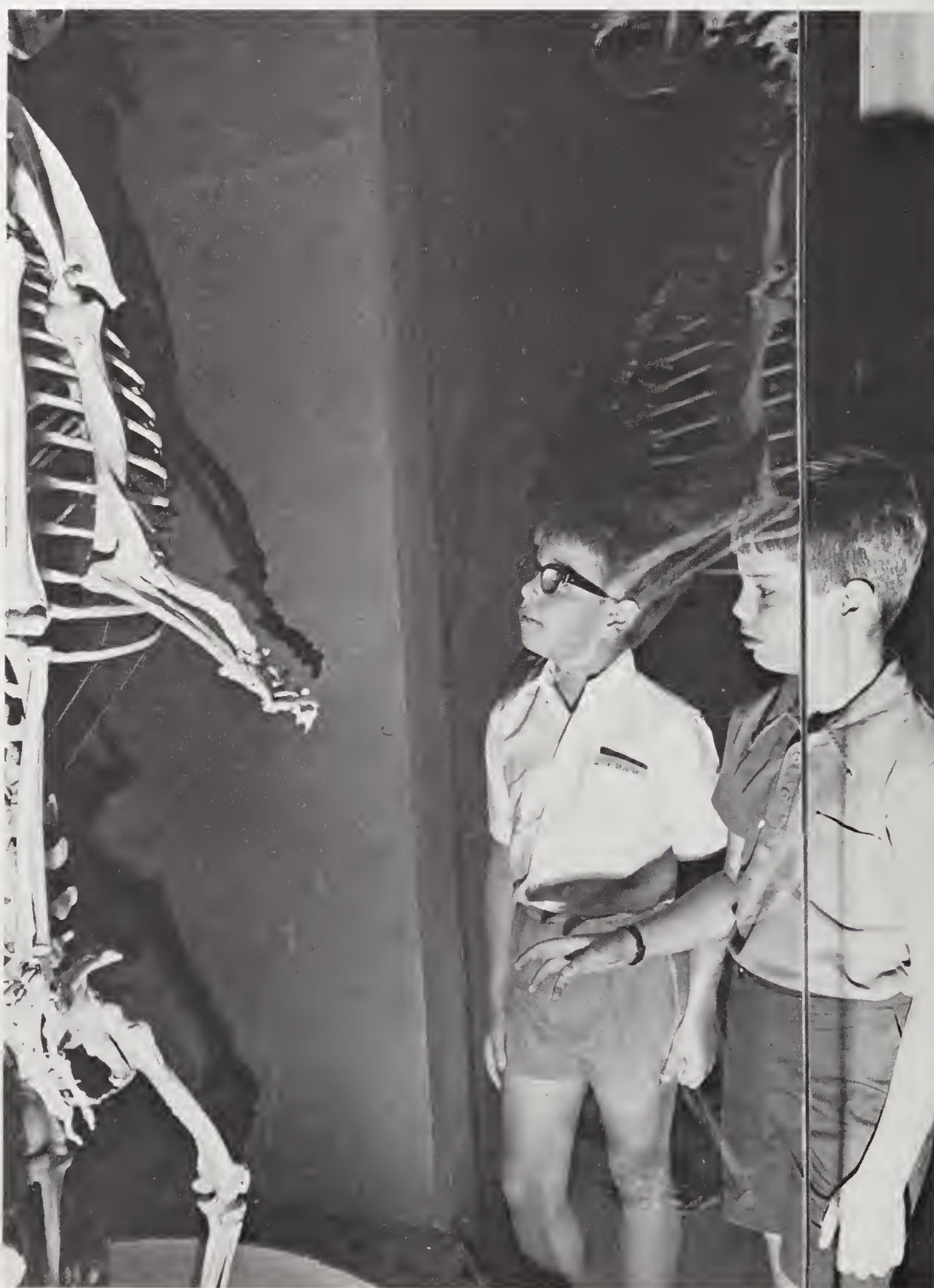
A new Zeiss low-power binocular microscope with a wide flat field and excellent depth of focus was installed in a special table built by the ROM carpenters. This permits the use of both reflected and transmitted light with the least fatigue for the operator. The unit also features a special mechanical stage for the accurate measurement of small objects such as mammal teeth.

One of the highlights of the year was the annual meeting of the Society of Vertebrate Paleontology at the ROM which was attended by almost 200

scientists. It included two symposia and about 80 formal and informal presentations. The ROM played host to the gathering in the Armour Court and the Paleontology galleries. Numerous letters expressing congratulations and appreciation were later received from Society members. The staff of the Department of Vertebrate Paleontology most ably organised both the social and scientific aspects of this convention.

The present staff is almost totally involved with planning and construction of the dinosaur gallery, and will continue to be so for the next two years.

The new Hall of Vertebrate Evolution displays standing skeletons of man and bear.



Education Department

Miss Norma Heakes, *Head*
Miss Ella Martin, *Senior Lecturer*
Miss Eugenia Berlin, *Supervisor,*
Saturday Morning Club (P/T)

Miss Betty Clark, *Lecturer*
Miss Alice Chrysler, *Lecturer*
Miss Margaret Cumming, *Lecturer*
Miss Mary Fitz-Gibbon, *Lecturer*
Mrs. Patricia Isetta, *Lecturer*
Mrs. Helen Tracy, *Lecturer (P/T)*

Clare Westcott, *Research Associate*
David McClure, *Lecturer (Bd. of Ed.)*
L. T. Podmore, *Lecturer*

The Museum prides itself on its Education Department. Through it, generation after generation of eager children have come to love the Museum and respect it. Miss Heakes quite rightly comments that, only too frequently, education reports have been written about *what* has been done, to *how many*, but not about *who* did it. So this report, contrary to custom, begins by paying tribute to the people who imaginatively organized the programmes and efficiently handled the endless crowds of school children who, year after year, visit the Royal Ontario Museum.

The members of the Education Department are not guides, hostesses, or lecturers, but highly trained, specialised and experienced teachers. In total, their some 60 years of classroom teaching and 130 years of museum teaching comprise not a storehouse of outdated facts or old-fashioned methods but rather a tremendous reserve of knowledge and wisdom. Above all they have developed a unique ability to interest the young in the past. Their names listed above will be familiar to the many who have had contact with the Education Department.

In addition to the above, Mr. L. Podmore (Oxon.) seconded from Malvern Collegiate, Toronto and Mr. David McClure from the Etobicoke Board of Education, added to our strength and brought more recent classroom experience to our teaching team.

This strong permanent staff is supported by an equally strong part-time staff which includes successful Secondary School teachers, an archaeologist and specialists in other specific fields.

The individual and team activities of the Education Staff are many and varied. They continually seek new ways, within the existing framework, of giving more people the opportunity to enjoy

the Museum. At the same time, the quality of the experience must be maintained and the ROM is above all concerned with quality. Class preparation prior to a visit is a problem which concerns all. If our teaching is as specialised as we like to think, only a broad academic background should be expected of a class. The real responsibility for a successful museum visit lies in the ingenuity, imagination, knowledge and versatility of the Museum teacher. The classroom teacher should be responsible for the attitude of receptiveness and co-operation that his class brings with it.

To achieve instant rapport, and bridge any mental gaps, theatre introductions with slides of gallery displays are frequently part of the visit. One of the most stimulating sessions was that conducted by Mr. L. Podmore for ancient history students. His selection of slides included one of an artifact, then a slide of the site from which it might have come, i.e., a Greek red and black vase, then the Parthenon as it is today. "We can show you this . . . but not this." The transitional commentaries, of course, gave life to the slides.

An important aspect of preparation lies in the communication between ROM teacher and the classroom teacher. Two two-day workshops were organized for history teachers from the Borough of North York. Etobicoke History teachers spent a day and were stimulated by their contacts with ROM scholars. In the case of Scarborough Grade 5 teachers, the direction of traffic was reversed. ROM teachers met with three different groups in their own schools, to introduce and explain the programme in which their classes would be involved. This briefing of the teachers made the subsequent 240 visits to the Museum notably more worthwhile. Pressure of members and lack of staff restrict the amount of such pre-visit preparation.

Many professors at the Teachers' Colleges and Colleges of Education have recommended that their trainees investigate the Royal Ontario Museum as a unique teaching aid. Some have gone even further and have included group visits to the Museum as part of special

events programmes. The Geography, History, and Latin Departments of the College of Education, University of Toronto all requested special assistance from the Education staff. Three students from the Geography course went one step further. Desiring to study Museum Education more closely, they spent four days with the Department discussing, observing, and teaching in a three-dimensional setting.

The *Teach-In* Programmes again demonstrate the versatility of museum teachers. It is difficult to predict the reaction to a museum visit of say the patients in the Hospital for Sick Children or the Bloorview Children's Hospital. Yet it is easy to share the happiness of a French child when the Museum teacher uses his language; or the excitement aroused by a teacher conducting a "mock dig."

Mrs. P. Isetta again conducted programmes in three North York schools – Sir Sandford Fleming Secondary School, Victoria Park Secondary School and Beverley Heights Junior High School. A total of 770 students had the opportunity to handle material and focus in on "the Tudor Era," "the Evolution of Man" or "Interpretative Looking at Artifacts." In the elementary schools of the Borough of Etobicoke, Mr. D. McClure held colourful and exciting sessions for 2,900 students on the Canadian Indians and the important topic of Ecology.

Misses Clark, Cumming and Chrysler selected materials from many departments to take on their trips to Renfrew, Stormont, and Glengarry Counties. In addition to providing valuable visual-aid materials to the classroom studies, these journeys create an interest in the Royal Ontario Museum that can only be achieved by person-to-person communication. In total, the three teachers visited 40 schools, taught 123 classes to 5,257 elementary students.

As a companion service to the above programme, the 17 Porta-Museums continue to circulate amongst provincial

schools and were, according to one comment, "more powerful than pictures." They contain historical or scientific material of interest to both elementary and secondary schools. The only expense incurred by the school is the amount of the freight charge for delivery from the previous school. Such services should be expanded.

Mr. Basil Johnston, teacher sponsored by the Department of Indian Affairs, again conducted *Teach-in* programmes on American Indian History. Believing that the proper study of history can lead to respect for ideas and myths of other people, he feels that the ROM has a special responsibility to all ethnic groups. To quote from his report, "a museum can no longer be considered simply as a

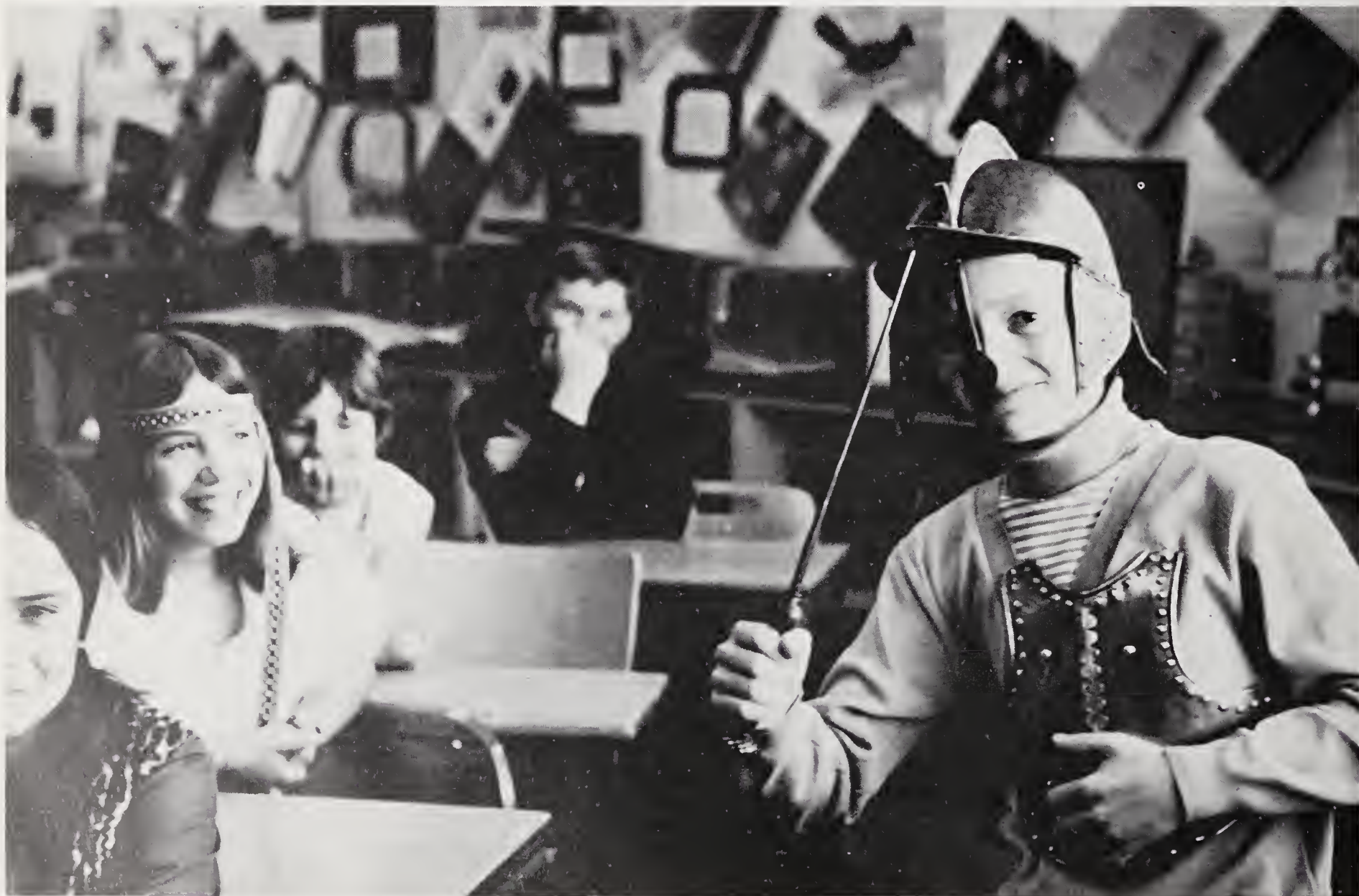
repository of the relics of the past; it must become a force in the community so that it can, in the present, give new life to the past and fresh moves to the future." To this end Mr. Johnston held discussions in the classrooms of 65 elementary, 14 separate, 17 secondary schools and 2 Universities and 12 Federal public schools. At the same time, he was involved with teaching outlines, bibliographies, radio, teaching kits and television. We are grateful to the Federal Government Department of Indian Affairs and Northern Development for supporting his services.

Elementary and Secondary school classes continue to come in very large numbers for one of the variety of programmes offered. Pre-visit preparation is ensuring that more and more visits are being planned to meet the needs of the particular class. As an experiment, the films of Sir Kenneth Clark's *Civilisation*

series were offered to the Secondary Schools of Metropolitan Toronto. Attendance totalled 3,241 students, representing about 1,200 individuals. The experiment was worth attempting for it gave us a clearer picture of how to use the films with future groups. Their level of sophistication has shown that they are more valuable for upper-grade students who have had some preparatory discussion of the topics.

The above programme was organised by Miss Ella N. Martin, who was also responsible for the Sunday Films Programme. Each film programme is planned to increase the enjoyment of our

Cavalier or Roundhead? Lobster-tail helmet from travelling classroom collection.



collections or provide some point of contact with current topics. A very useful file record of previously shown films is one of the fruits in a museum. The attendance at ten Sunday afternoon films was 2,683 but again more funds were necessary for publicity. Miss Martin also organised five Extension Courses in collaboration with the University of Toronto Continuing Education Extension Division.

"Canadiana for the Collector," "Looking at Chinese Art," "Invertebrates," "Man's Unseen Associates," "Astronomy," and "The Exploration of the Universe," again appealed to a varied group of people. For a second year, one of the courses, namely "Canadiana for the Collector," was given at the North York Don Mills Library. Some of the audience came thirty or so miles each night to participate.

For the first time the Education Department had an active part in the *Romarama* programme. A telescopic view of some of the facets of the services of the Department was enlivened by captions such as – "You and Eye" and "The Listening Eye." The members of the Saturday Morning Club demonstrated some of the creative activities in which they had participated. During the year Miss E. Berlin has "as usual" arranged a stimulating programme by introducing outside visitors who had a particular interest to share with the children. How fortunate are the children who manage to find places in this club!

A less structured summer activity was offered to the individual child who visited the Museum. "ROM Rambles" (a pencil and paper tour) took the young visitor to many parts of the Museum. Animals, Dinosaurs, Egyptian and Indian galleries were the most popular.

Conferences and travel, two ways in which Museum teachers can be refreshed and stimulated, took the staff to many parts of the world. Museum Education is a rapidly expanding field and they must be in touch with developments in other museums.

Miss Heakes had the distinction of being elected to the Council of the Canadian Museums Association.

Three staff changes took place in June. Mr. McClure's two year contract, as teacher seconded to the Education Department, ended. We hope that he has received as much as he so generously gave of his deep interest in Canadian Indians and Ecology. Mrs. Helen Tracy who has so capably contributed to the Education programme also left to work with the volunteers of the Elizabeth Fry Society.

Miss Ella N. Martin, who joined the staff in 1938, retired, but fortunately for the Museum is not leaving altogether. She will be continuing in an advisory capacity to the Visitor Development Services and the Film Library. Miss Martin who is well known across the continent has always been in the forefront with new ideas and has seen many of her recommendations implemented. She has worked with dedication, deep knowledge and imagination to maintain the quality of our services and to make the museum a resource for the people.

The teachers of the Education staff are grateful for the advice and encouragement of the Curatorial staffs in assisting them to keep abreast of new developments in the various fields. It is encouraging to see the increasing interest the curatorial staff is showing in what is being taught in their galleries.

Buckminster Fuller at the 1971 Annual Meeting of the American Museums Association appealed to Museum officials to help save the human species from overspecialization. He gave a clear mandate to museum educators to see "that each child learned the truth, acquired new information and developed more spontaneity in thinking about it." How easy that sounds but how difficult it is to achieve!

As Miss Ella N. Martin retired this year it is fitting to give more space in this report than in most years to her thoughts as she reports on Extension Courses. "The Museum is a meeting place," she says "and this characteristic can be frequently implemented in the make up of our adult series of lectures.

"Another important function of Extension Courses has been consistently demonstrated all though my experiences: this has been an attempt to get away from the straight lecture, to initiate discussions rather than one-man speeches and, above all, to initiate the kind of session in which no student is talked at but given the opportunity to find out for himself, to learn by discovery. This system may perhaps seem easier in a science subject where this pattern has been operating, e.g., "Invertebrates – Man's Unseen Associates" but can well operate in an institution such as this where students learn from the real thing, the object. Many speakers are beginning to get away from the idea of standing in front of a case of objects and holding forth, giving out most appealing and interesting information. With practically all our speakers the last three years being Museum staff, this being particularly so in the over-subscribed series on Chinese Art, sessions in the galleries have begun, more consistently than in the past, to demand at least vocal evidence of participation, by the audience.

"Two courses were given by Dr. King in the Planetarium this year: "Astronomy" on 15 Monday evenings, total attendance approximately 791 and "Exploration of the Universe," 15 sessions, total attendance 356. "Canadiana for the Collector" was given on two evenings. Registration for its Tuesday evening sessions at the Royal Ontario Museum was closed off at 151 (total attendance 1,214); each session was repeated at Don Mills Public Library with a registration of 66 (total attendance 652). "Looking at Chinese Art" on Wednesdays was by accident

over-subscribed to 47 instead of 40 with a total attendance of 355; on some occasions the audience was too big which led to complaints. Dr. Wiggins' course on 'Invertebrates, Man's Unseen Associates' kept to its original intent with a registration of 20 with total attendance of 170 in 10 sessions; one of these was a field trip on a Saturday.

"A most popular course was obviously 'Canadiana for the Collector' and this should soon be repeated with variations. I think the most popular lecture of all was the second to the last one given by Tom Kines, an expert in Canadian Folk Songs and a musician. His charm and sympathy with both his audience and the four great collectors whose work he demonstrated both in word and song, captivated his audience and gave a pleasure still remembered. I should particularly like to thank all our visiting speakers in this series: W. S. Goulding (U. of T.), Renwick Weller (Agincourt), Philip Shackleton (Manotick), John Sheeler (Toronto), Tom Kines (Ottawa) as well as Donald Webster and Helen Ignatieff for an excellent course with special thanks to Helen Ignatieff for her assistance in planning the series.

"The total attendance for the five courses (one repeated) was 3,538. As usual, the U. of T. Extension Division included all our courses in the mammoth 'calendar' of all Extension Courses they offered. Metrodoc included them all in its listing of adult courses being offered in Metro. To both organizations we are grateful and particularly to U. of T. Extension Division who, after some temporary diversion last spring, decided they did, after all, still want the Royal Ontario Museum to collaborate with them.

"Besides urging more adult sessions of an interdisciplinary make-up or content, I should also like to urge the Museum staff to capitalize on the inter-disciplinary nature of the Royal Ontario Museum collections. Few museums in the world house under one roof collections of both the arts and sciences, here on an almost global scale, with their potential today to assist man to relate to his environment, to know the natural materials which make up our earth, the living forms that populate it, and to sense through these and the works of men's hands in other places and other periods, his place in the pattern as a whole. It seems to me we are failing to make the fullest use of what we have until we demonstrate it more actively.

"I should also like to urge that we constantly try to appeal to a broader and broader-based audience, with a constantly new type group of applicants for our courses, maybe less rich but not necessarily less intellectual than some who now come regularly. We should, perhaps, seek out small groups of people interested in a specific subject whom we could serve, and offer a course specially

for them. In other words, we should seek out our audience first, publicity would then be less crucial and our service more relevant.

"In the almost 25 years I have been running Extension Courses, my life has been much enriched by the people whom I have met and who have discussed their ideas and put their knowledge so pleasantly and ably at my disposal and that of those who chose to take advantage of it. I want to say to all our 'speakers' in this quarter of a century, both those in the Museum and outside it, and to all the staff of the U. of T. Extension Division with whom I have worked over the years, I hope you will guess a little of the pleasure and stimulation you have afforded me. I wish you well. Very many thanks and 'bon voyage'."

The Education Department (sometimes under gentle protest) also compiles the various statistics of Museum attendance. To mention only a few highlights:— 162,930 children came to the Museum in classes — of these 97,304 received instruction; 9,480 received visits, etc., outside the museum. Total attendance was 1,266,648.

Information Services

Alex MacDonald, *Head*
Miss Beverly Slopen,
Information Assistant
Mrs. O. G. Koyama,
Editor of Publications

Mrs. Ursula Young, *Editorial Assistant*
Mrs. B. Fischer,
Special Projects Assistant (P/T)

The increasing popularity of museums must inevitably lead to a major expansion of their communications services. This will be accompanied by increasing sophistication since they must be able to compete with highly developed and heavily financed media.

This year's report from Information Services is understandably brief, not because it was in any way an inactive year but because a change in the Department's management broke the continuity of activities. Inevitably, in these circumstances, some thrust is lost as different attitudes assert themselves. Yet, it is a tribute to the staff and the previous administration under Mr. Bruce Easson, that the transition was remarkably smooth and any hiatus barely perceptible. Meanwhile the new directions under Mr. Alex MacDonald begin to make themselves very noticeable.

The Museum's publication programme expanded slightly over the previous year with a total of 20 published titles. This included a major hard-cover edition of New Guinea art, *New Guinea: Big Man Island*, published in connection with the exhibition of the same name. Dr. E. S. Rogers also completed his *Indians of Canada* series which is now enjoying considerable sales in Ontario schools.

It is vitally important that an institution such as the ROM should provide its scholars with a competent and successful publishing facility for both scientific and popular works. More effort and funds must be applied in this direction.

It is sad to see so many important books written by Museum staff not yet published under the ROM imprint. Eventually the Museum hopes to develop as a significant Canadian publishing house and thereby increase its contribution to the cultural life of Canada. Distribution, of course, is a major problem.

The Department has been extremely active in publicity as the endless stream of clippings from across the country attests. The Museum is a constant source of stories and our working relations with all media are extremely cordial. However, it must be recognized that the Department does not operate in a vacuum but itself initiates many story ideas. The Director, many curators, the Members' Committee, and others all contribute ideas, and frequently hard work, to the publicity programme.

Such publicity is seen in newspapers and magazines, on television and heard on radio. The Department is our prime communication channel with the general public and we are grateful to the media for playing their part so generously. On the other hand they would not be so interested if they did not recognise that the Museum is "news" and that it plays a vital part in our cultural life. We welcome the light touch with which our news is sometimes imparted. We would not enjoy such coverage if we still laboured under the "musty old Museum" image.

In another area of communication the Department has been responsible, with the Film Library and Archives, for arranging filming in the Museum, primarily by television companies. It has also supplied literally thousands of photographs, both colour and black and white, to publications, publishing companies and similar organisations. These

activities would not be so successful, indeed would be impossible, without the extraordinary degree of co-operation we receive from the curatorial staff and our tireless photographic staff. We are in a position to attest to the fine spirit of co-operation which runs through the whole organisation.

Among the Department's other activities, *Rotunda* continues to appear quarterly and distinct changes are being made to up-grade it by expanding the number of pages and introducing four-colour illustrations. The *Archaeological Newsletter* is modest in format but very popular. The full flood of design and print demands, from labels and post-cards to posters and exhibition catalogues, continues without pause. So varied are these demands that the Department had an obvious need to be more self-contained. A graphic designer has therefore been added to the staff. Our staff newsletter *InterROM* tries to keep staff informed on many areas of this complex place.

The staff, with their specialized skills, are at the root of our success. Yet much of what we do would not be possible without the help we receive from the photography, programming, display and other departments. We are grateful. It is no use having a fine programme unless our various publics know about them. It is the Department's task to inform them. 1971-72 will be the test.

Museum Library

Miss Eileen Taker, *Head Librarian*
Mrs. Susan Johnston, *Assistant Librarian*
Mrs. Victoria Ritchie, *Assistant Librarian*
Miss Eveline Dowie, *Assistant Librarian*
Mrs. Jeannette Alexander,
Library Assist. (P/T)

Mrs. Daisy Coburn, *Library Assist. (P/T)*
Mrs. Grace Livingstone,
Library Assist. (P/T)
Mrs. May Smylso, *Library Assist. (P/T)*
Mrs. Norma Townsend,
Library Assist. (P/T)
Mrs. P. J. Trunks, *Library Assist. (P/T)*

Miss Taker points out how the statistics compiled for 1970/71 show a dramatic increase in the use of the library in certain areas. While the Museum staff requested 3,932 reference searches, a mere 6% increase over the previous year, visitors and students outside the ROM made 7,006 reference requests, an increase of 79%! This is a welcome development but it puts a considerable strain on a staff inadequate in numbers to deal with a large public demand. Inter-library loan statistics show a similar trend. Other libraries borrowed from us for their users, 574 titles (a startling 115% increase over the past two years). The Museum Library borrowed 1,084 titles for curatorial research, a 30% increase. Museum staff borrowed 8,963 titles for use in the departments.

Despite the increased demands for reference service the Library staff managed to catalogue 2,595 titles, reclassify 399, add 22,500 cards to the Library catalogue and subscribe to 495 journals.

The Library distributed 21 Museum publications (including 4 issues of *Rotunda*) to institutions around the world. Many useful publications were received in exchange. This is an unseen return on the expense involved in our publications programme. The Library wishes to acknowledge the many gifts of literature from both individuals and other institutions, particularly the generous gifts of entomological journals and books by Father Riotte of the Entomology Department.

The professional staff continued to participate in library associations. Resignations were accepted with regret from Mrs. Susan Johnston who moved to Ottawa to join her husband and Mrs. Victoria Ritchie who decided to devote more time to her home and husband.

Lack of space, the main problem to plague the library recently, has now become acute. In an attempt to alleviate this situation an intensive reclassification project is underway. If all the material could be integrated into one collection, the present area would be used more efficiently, and the library would be easier to use.

Reclassification alone, however, can be only a partial solution as the space gained would merely postpone the problem for about one year. Therefore, it appears inevitable that much of the older and less used material must soon be placed in storage. Hopefully, at that time, sufficient, adequate storage will be found close enough to permit this material to be available to staff borrowers at a few hours notice.

We thank the Librarian for compiling the length Bibliography on pages 69-72.

Film Library and Archives

W. H. Bayley, *Head*
R. Whitney, *Film Technician (P/T)*

Mr. Bayley has been playing a major pioneering role in this aspect of museum work in Canada. It is evident that film will play an increasing part in the Museum service to the public. The Museum has the material in abundance and the intellectual resources to use it but unfortunately, we do not have the financial backing required to compete on a professional basis with film and television companies. However, a start has been made with the new Film Library and Archives which had an active and productive year. In co-operation with the Ontario Educational Communications Authority Channel 19, the Museum supervised and assisted in the production of 65 short subjects of Museum materials. These cultural shorts, 1-3 minutes in length, were made to fill the time slot usually reserved for commercial messages. The Programme *Around and About* aired verbal information and visual concepts of most of the collections in the Museum to assist in providing Museum visitors with "pre-knowledge" of the collections. The Film Library and Archives also participated in 20 days of shooting the OECA film *New Guinea Mosaic*.

The *Civilisation* series was shown to 14 colleges of applied arts and technology, high schools and libraries. It is unfortunate that the British Broadcasting Corporation seems inflexibly dedicated to maximum profits from its television productions for there are many programmes which the Museum would like to own and show. The procurement programme resulted in the acquisition of

Museology Programme

W. H. Bayley, *Museology Administrator*
R. Whitney, *Film Technician (P/T)*

eight special films for use in the Education Department, the curatorial lecture series, Touring Committee, and orientation sessions, etc.

Film footage was provided together with editing facilities and equipment rental for coverage of archaeological and other operations in the following locations: Voyageur Canoe Race, Peru, Sierra Madre Rain Festival (Mexico), Godin Excavations Project (Kangavan), East Anglia (England), Prince Edward Island, Senneville (Quebec).

Miss Martin's film "Life As It Flows" was re-shot in colour and new sound track will be provided. This film uses Museum Film Library and Archives material exclusively and is designed to illustrate the cultural importance of Museum objects to Man and his world today.

How valuable it would be to make complete film records of our archaeological expeditions! A very large public exists throughout the world for them and the Canadian reputation would be enhanced. The Museum can do an amateur job but such films require a full co-operation between the scientific staff and professional filmworkers. The Canadian National Film Board could undertake such work with pride but we have failed as yet, to engage their interests.

The Museum training programme launched last year has produced a number of well-trained, enthusiastic young Museum workers. Class I did not complete their thesis requirements in September 1970 since they left to take up positions. We hope that they will receive their University of Toronto M.A. Diplomas at the Fall Convocation 1971. Class II continues for four students, Class III for five and Classes IV and V for eight students each. They are drawn from four universities in Canada and the United States. The course is very popular with students – some 45 applied for ten vacancies. The enrolment for 1972-73 will be restricted to a maximum of 15 to be graduated in one class after 15 months. Care must be taken that there is no over-production of graduates and for this reason the Department maintains a careful market survey by circularizing 300 Canadian and 200 U.S. institutions.

The curriculum has proved effective but, in the light of experience, Mr. Bayley has added the following subjects:

Public Speaking (topics such as "A Museum's Role in a Cultural Policy for Canada"), redesign of Galleries Projects, the development of Information Sheets and Labels for various ROM collections, scripts for audio-visual media in support of ROM collections, familiarization with the professional use of television equipment, direct participation in the Art Gallery of Ontario Extension Programme for History of Art majors; students will, under direction, originate and produce travelling exhibits; unpaid apprenticeships in Provincial museums and galleries, to aid in improving the service to the public and to provide experience.

The calibre of students graduating from the course launched with such imagination and generosity by the Donner Canadian Foundation, assures Canada that the profession will not lack skilled personnel to engage in a difficult and demanding career. The Museum would also like to train a few candidates from under-developed countries but hitherto has been unable to interest the Federal Government in supporting them. Canada would gain a great deal from a few such scholarships. The country looks to the Federal Government for promised major stimulation for Canadian museums. When this happens, and happen it must, these young professionals will be equipped to play a major role. We congratulate ourselves, with due modesty, that the Museum has planned ahead.

Photography Department

Leighton Warren, *Chief*
Arthur Williams, *Photographer*
L. Gardiner, *Photo Technician*

The calls on our Photography Department continue unabated and it has again successfully satisfied a voracious appetite for photography of all kinds – including 19,343 prints, 5,588 negatives, 4,002 slides and 358 colour negatives. This truly remarkable output is well above that of last year and reflects not only staff effort but also the efficiency of the new equipment and space to house it.

Not only does it carry out these tasks – some routine and repetitive but many

requiring a high degree of artistry – but it also shows imagination and initiative – rare qualities indeed.

Leigh Warren is pleased with a number of “firsts” as he calls them: a full colour cover of our English Pine Room for the *Canadian Antique Collector*, edited by Marion Bradshaw, colour photographs of the many beautiful displays in the *Flower and Garden Show*, and a travelling photographic show consisting of 22 large colour prints of some of our many

Far Eastern treasures with which the Department is very pleased.

The Photography Department is a very strong arm of our scientific and general work – as well as of our Information Services. Those who have had occasion to seek photographs in other museums will appreciate the speed, efficiency and willingness of the Department’s staff who always remain cheerful under pressure.



Display General

J. R. Anthony, *Chief*
G. S. McIntosh, *Assistant to Chief*
J. W. Hughes, *Artist-Craftsman*
G. Nitefor, *Artist-Craftsman*

Miss S. Hahn, *Artist-Craftsman*
Frank Peynado, *Painter*

During the last three years the Display General Department under John Anthony has developed into a versatile team capable of dealing with tasks well beyond those of pure display. Thus it is constantly under pressure for renovations, redesigning laboratory, office and storage spaces as well as temporary and permanent exhibitions. It will take many years to catch up with the backlog of neglect and inadequate financing which had left the Museum in such a sorry condition. Funds are still insufficient and the design and craftsman staff too small to restore it with the necessary speed.

However, with the willing help of our highly skilled, always willing carpenters and preparators 22 exhibits of various size and complexity were mounted – most notably *New Guinea: Big Man Island*, for which we attempted an appropriate jungle atmosphere. It was popular with both public and television. Smaller shows included *Mayan Art*, *Linnogeology*, and an *Anglo-Saxon Archaeological Expedition*. Mr. Anthony feels that the first was the most successful visually and the last the most thorough in its preparation and information.

The Department was responsible for the interiors of the new restaurants and Members' Lounge. In addition it designed a new Mini-Shop for children and a children's gallery area which holds great promise for future exhibitions. The children's restaurant, "The Dinosaur Den" is particularly successful.

Nevertheless temporary exhibition space is still very short and many exhibitions of value must be refused. This situation is, of course, aggravated by the Museum's new but, we feel, correct policy of showing more of its own reserve collections.

The Museology offices, Vertebrate Paleontology offices, Acid Leaching Laboratory and Grinding Rooms etc. were redesigned.

A major design achievement was the west side of the Vertebrate Paleontology Gallery and work is in progress for the east half on which it is hoped to start construction in September. Other renovations are in progress for the Textiles, Egyptian, Far Eastern and European Departments.

The installation of the "Baroque Room" was perhaps the most difficult of the smaller installations due to environment control requirements and hanging systems for the leather wall coverings. Budget restrictions and building conditions resulted in compromise.

A major difficulty now facing us is the shortage of electric power. The Museum is at present using its inadequate supply to a maximum and the restrictions this will impose will become increasingly evident. "One more lamp and the whole lot will blow," we are informed. The Department operates in hopelessly crowded conditions.

1972, the Museum's Diamond Jubilee year, will create a great deal of extra work. Badly needed staff cannot be hired due to budget restrictions but the Department will meet the challenge as it always has. We have never failed to meet a deadline and, despite the Director's dire predictions that one day we shall, the record remains.

Finally the Director would like to express his appreciation of the complete redesign of his office, a long delayed project carried out during his holidays. It has produced a restful, efficient atmosphere in which he is no longer ashamed to greet visitors.

Display Biology

T. M. Shortt, *Chief*

H. D. Pepper, *Artist-Craftsman*

John Mair, *Artist-Craftsman (P/T)*

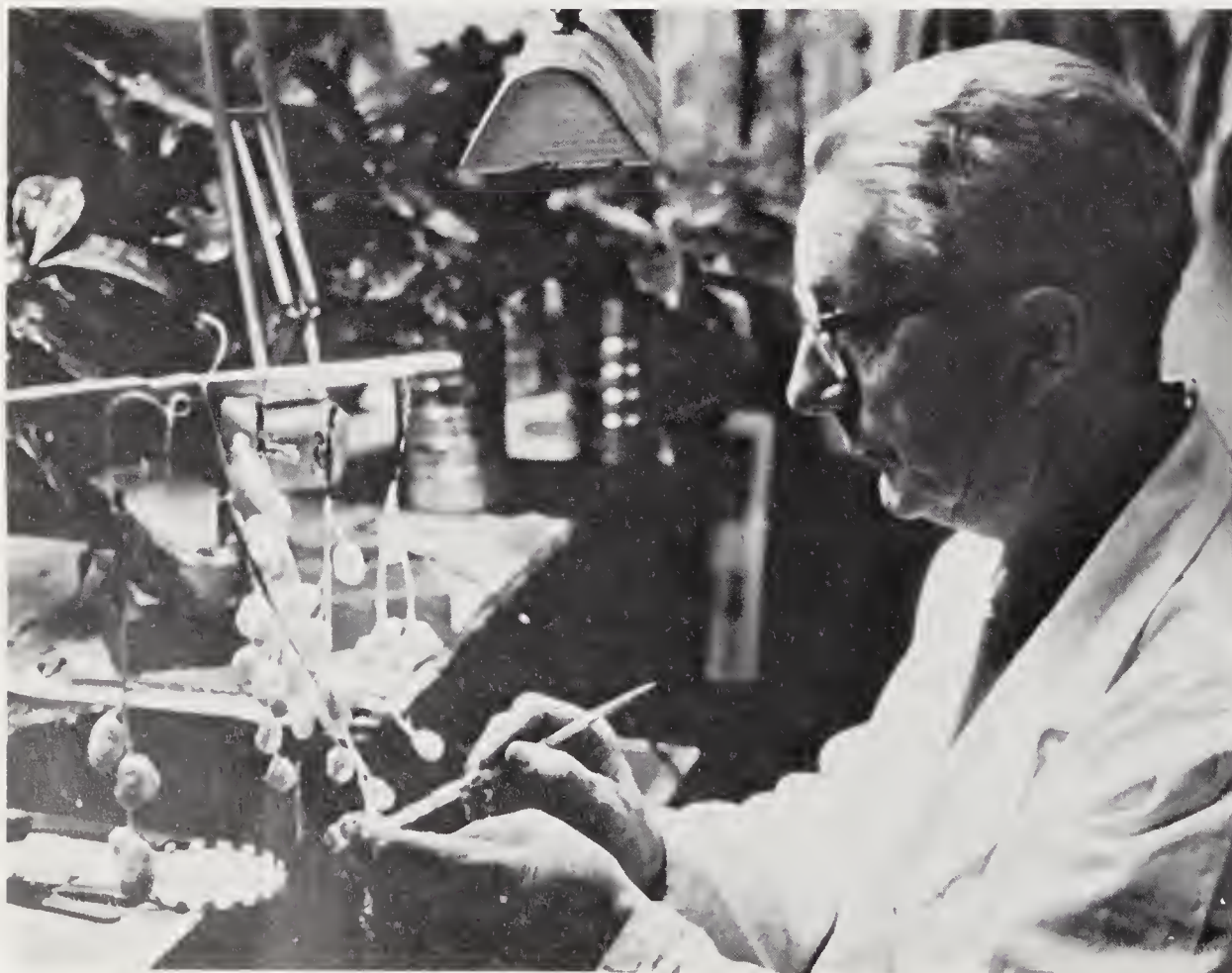
The Museum enjoys in Mr. Terry Shortt an outstanding artist and craftsman in the highly specialized field of Display Biology. He is continuing the series of dioramas depicting the major ecological area-types of the world. His main pre-occupation during the past year was the continuation of work on the Uganda rain forest diorama (The Budongo Forest: see last year's report). This has proven to be the most ambitious and most difficult project attempted by Display Biology. The nature of the entire conception of the exhibit, to transport the viewer high into the crown of lush forest, necessitated the painting of the entire ceiling to achieve the illusion of still greater height, something never done before at the ROM. Painted cutouts and literally thousands of leaves had to be arranged to conceal completely not only the juncture of walls and ceiling but also to give the diorama floor the appearance of being 80 feet above ground. This is like trying to disguise all of the directional changes and corners caused by the architectural planes of one's living room. The work from scaffold and high ladder has been taxing but we have high hopes that, when completed in the fall of 1971, the

Budongo Forest exhibit will stand as one of the most realistic and dramatic dioramas to be found anywhere. Many innovations such as bas-relief models on the background and forced perspective in the foreground foliage will impart a feeling of depth not achieved in earlier exhibits. These have been largely the work of Mr. David Pepper who has brought many other new techniques to the diorama, including the construction of leafy branches out of paper, paint, masking tape, florists' tape and old wire coathangers! The staff will soon start on the taxidermy of a Colobus monkey and a Red-tailed monkey; this is necessary because museum calibre taxidermists asked as much to mount the two small specimens as the total of the Department's annual budget, including equipment, supplies and travel! Problems such as these have slowed us down considerably, yet in the long run, Mr. Shortt feels that, having done the job ourselves, we shall achieve exactly what we want. The staff continued its talks and demonstrations to the students of the Museology programme and also spoke to many groups of children and adults, both within the Museum and at schools as well as to other organizations outside. An extensive collection of colour slides

is being assembled for educational purposes. Among other subjects, we have a continuous photographic record of the development of the Budongo diorama, from the original field work in Africa to its final achievement. This should make a most interesting talk.

Sources of collections of mounted animals yearly become scarcer and the department has observed an increasing number of appeals for the loan of material to television, schools and others. All requests to legitimate and worthy causes that could reasonably be complied with were granted.

Perhaps not the least important activity, though certainly neither time-consuming nor onerous, was a series of interviews with Mrs. Charles Léger who is currently engaged in collecting material for a history of the ROM. As with many institutions approaching 60 years of age, much of the Museum's early history, apart from what can be gleaned from the minutes of meetings and rather dry early annual reports, is slipping away. The recent deaths of L. L. Snyder, J. L. Baillie, and Dr. V. B. Meen, to mention only three, combined has meant the loss of more than 120 years of historical recollection of the ROM, its attainments and its ordeals. It is commendable that as much as possible of our living past is being salvaged at this time and by as competent a researcher as Mrs. Léger.



Artist-craftsman John Mair prepares preserved vegetation for use in the Budongo rain-forest diorama.

Programme Secretary

Mrs. H. M. Downie,
Programme Secretary
Miss Katherine McLay,
Assistant to Programme Secretary
Mrs. Ann Kachur, *Membership Office*

Mrs. Helen Downie reports that membership has increased slightly from 3,455 to 3,626. The Museum made no major concerted effort this year to increase membership which we feel is running at a manageable level. However, we are pleased to see that the Members' Lounge has tempted a number of the staff to join. As the advantages of the Lounge become better known, especially when the license is in operation, we confidently expect membership to increase rapidly. The Museum gains little financially from membership dues but, on a purely materialistic level, members who use their privileges can gain greatly. It is probably the best "buy" in Toronto's expanding cultural life. In addition, we consider our members to be a valued group of interested citizens.

One disappointment was the need to sell the two Museumobile vehicles due to the fact that they did not meet the requirements of Ontario roads. Fortunately, the Provincial Government, recognising their value and potential, has agreed to finance vehicles which will meet their own regulations. Having learned much from the first experiment we look forward to producing better travelling displays to serve the people of this vast province.

Mrs. Downie and her small staff operate a major, complex responsibility with great efficiency and it is fitting to mention here the interest and work of the Staff Exhibitions Committee through which the Curatorial Staff are contributing more than hitherto to the programme.

Major exhibitions included: *Modern Japanese Prints*, *Design in Glass*, *The*

Red River Artist: Peter Rindisbacher, *New Guinea: Big Man Island*, *Canadian Ceramics*; Special Exhibitions: *Agates*, *Dürer Prints – Celebrating Dürer's 500th Anniversary*, *18th Century English Furniture*; and a host of smaller exhibitions including *Expedition to Cameroun – Mammalogy Department*, *Fish Prints by Peter Buerschaper*, *Tassie Portrait Medallions*, *Trophies of a Dig*, *Print-makers of Canada*, *Medals by Dora de Pedery Hunt*, *Hoefnagel*, *The Canadian Bedrock*, *Modern Enamelling – By Bronka Michalowska*, *Anglo Saxon England*, *Linnogeology of the Great Lakes*, *The Sea and the Shore*, *Photographers' Japan*, *Statements of Affection – Photographs by Tony King*, *Persepolis*, *How Children See ROM*, *Focal Forum*, *Contemporary Chinese Brushwork*, *Canadian Mandalas – by David Reid*, *Paintings in Early Canada*, *The Crown in Canada*, *Primitive Art – 19th Century*, *Plotting the Land*.

Our tireless Honorary Curator of Philately, Douglas Patrick mounted *Musical Composers*, *Malta*, *Queen Victoria*, *Swiss Pro Juventata*, *Canadian History*, *Fiji*, *The Bahamas*, and *Tristan da Cunha*. The new Children's Gallery exhibited *Faces of Childhood – by Art Williams*, *Children's Art and Heritage in Peril and Alaska's Vanishing Totems*. The Textiles Department, to emphasise special areas of the Museum collection or where possible to complement other exhibitions or special events within the Museum, organised *Quilts and Quilting*, *Shawls*, *Spanish Fabric*, *Harvest '70*, *Flowers in Textiles*, and *Indian Fabric*.

Certainly the most traumatic of the exhibitions was the *Flower and Garden Show* which was marred only by being too popular. The crowds were so great

that it was difficult to see the exhibits and this caused some complaints. Nevertheless it attracted about forty thousand visitors and was a trial by fire for the new restaurants.

Sixteen lectures were given and no less than 43 special functions including: International Art Critics Association meeting, *Civilisation Film Series*, the dedication of the totem pole in memory of the late T. F. McIlwraith, opening of the Baroque Room, Ontario Association of Art Galleries Seminar "The Role of the Trustee in the 70s," Hall of Vertebrate Evolution Children's Opening, *ROMarama*, members viewing of Canadian Ceramics and Dürer Prints, Architects Society Dinner, farewell party for Dr. L. Russell (retired), Miss E. Martin (retired), Mrs. N. Priverts (retired), and Miss A. Liebeck (leaving), *ROMart '71* – sale of work by student artists, opening of the Garfield Weston Furniture Exhibition, Hungarian Gala Evening, Olivetti Screening and Reception – showing the 50 minute film by Olivetti entitled "Kyoto," Department of University Affairs Christmas Party, Spring Flower and Garden Show, This is India – Fashion Show, farewell party for Dr. Bissell.

The Museum's rooms, inadequate and old fashioned though they are, continued to be popular for meetings of clubs and societies. This gives clear proof that the Museum keeps this centre of the city alive.

Sales and Information Desks

Mrs. Helen Downie introduces her report on this aspect of Museum work by observing that, although in most shop operations the major interest at the end of the year is in the balance sheet, the operation of Museum shops involves much more than profits alone and a successful year is not wholly related to the figures.

She is confident that we have made great progress since this time last year and believes that we have achieved or are on the way to achieving many of the goals we have set ourselves.

Basic organisation has been greatly improved and our records and stock are in good shape, although the latter is still dispersed in several areas in the building. Inventory has been cleaned up and satisfactorily reduced. The flow of paper work and present procedures have been streamlined and approved by the Accounts Department and the customs clerk where necessary.

We have made some staff changes and, as usual, staffing during the weekends remains a problem, but on the whole, Mrs. Dowton, the Manageress has done a splendid job in supervising this aspect of our work.

Most, but not all, of the alterations requested for the Main Rotunda Shop have been made. We still need a different type of jewellery case and more flexibility in altering displays. There is room for improvement in our labelling systems and we hope to deal with this during the coming year.

The most important event of the year was the opening of the Mini Shop in March. This is a delightful addition to our sale area and is proving most satisfactory (aside from the heat which is causing serious health problems for the staff). Little if any advertising has been done for the Mini Shop, but it is hoped that, in the coming year, schools will be notified of its location and of the educational nature of the material for sale. Thus children may be allotted a few minutes at the end of their visit to discover its treasures – from Japanese water flowers to microscopes.

Following the principles governing our Museum Shop which were set out in last year's report, Mrs. Downie feels our accomplishments have been surprisingly great.

With regard to books the only main difficulty has been in choosing from literally thousands those which will sell

the best, are approved by the curators and are most up-to-date. As our storage space is so limited, we have been more than happy to accept curators' advice, trying not to have too many expensive books, but those which will appeal to young and old and reordering those which have proved good sellers. Some of the publishers' regulations about quantity make it difficult if not impossible for us to take orders. We hope also to establish a book corner for collectors only and this will be worked out next year.

As far as merchandise relating to the collections is concerned, we have encountered some problems and disagreements – chiefly in the selling of archaeological material and specimens offered from bona-fide exporters and importers. However, the curators feel strongly that we should not sell this type of material even though it is sold openly (presumably within the law) in its country of origin. Mrs. Downie understands and sympathizes with their objections but finds it frustrating, especially so when on the other hand some would not mind if she sold cheap plastic reproductions on the end of a key ring!

Ethnographic and folk art material is thus left to represent the collections. Here we have been most fortunate in finding suppliers in Canada with a great variety of interesting imported material of good quality and intrinsic value. We have also purchased from abroad and have in most cases been well satisfied with the quality – though in the long run it seems more economical for material to be purchased from an importer due to our small orders, freight charges, unreliability of selection, customs clearance and duties, etc.



Mineral specimens are always popular items in the Mini Shop.

Canadian Indian and Eskimo material is so important to us that it needs a special word. I am pleased to say that we have had nothing but the finest collaboration from suppliers of this material – even to the satisfaction of the Ethnology Department which has purchased from us (unfortunately at cost prices!) for its collection. I think that it grieves Dr. Rogers to see some of the material go out of the country and he would like it if we could ask our customers for their birth certificates! We are receiving supplies of beautiful West Coast Indian carving, silver and weaving and I believe we will build up a reputation with this material.

We have had varying success in our efforts to relate merchandise to the Museum's Programme.

For the exhibition *New Guinea: Big Man Island* we obtained a list of suppliers from the Australian High Commissioner and wrote to all, but unfortunately because of the distance, negotiations were difficult and the material arrived too late. On the other hand, it was of such good quality that the Ethnology Department bought a good deal and we all but sold out of the remainder very quickly. We have continued to purchase in small quantities from this source for collectors and others interested in authentic and exotic craftsmanship.

During the summer we obtained examples of Canadian weaving to supplement a display in the Textile Gallery. Fortunately the material was sold and we will repeat this in September when we hold the Exhibition of Canadian Textiles – *Keep Me Warm One Night*.

Our most successful effort was with the Flower and Garden Show in March. Hasti-notes, dried flowers, vases, pots and baskets sold very well.

On the other hand, we did not sell a single piece of handmade glass which supplemented the show of Modern English hand-crafted glass. Fortunately it was on consignment!

Souvenir material has almost disappeared from our shelves but occasionally the

urge to make a quick sale by supplying the unsuspecting customer with "cute little things" gets the better of us. However, I believe we are building up a discriminating clientele and we shall not have to compromise too often in the future. Many unexplored possibilities for variety and improvement still exist particularly in the field of modern gifts using new materials.

With the difficulties in our distributing system and the appointment of a new Information Officer, the whole position has been re-assessed and it has been agreed that the Shops will not now handle the Museum's mail order business. This will reduce Shop revenue slightly, but will make more money available to Information Services for future publishing ventures.

With respect to Christmas cards, post-cards and hasti-notes, in the past the Book and Gift Shop was financing not only ROM publications but the production of various paper reproductions. In order to obtain a good production price, vast quantities had to be ordered. The single shop outlet could not be expected to sell such quantities in years. In order to have some ROM Christmas cards last year, we had seven re-run from a former supplier. This looked very tired, old material and we decided not to repeat this practice. Thus we shall have very few ROM Christmas cards for sale.

In discussing this matter with the Information Officer and others concerned, we have decided that, until we can establish a proper publishing procedure with a good distributor, the Shop will make do with *old* stock and outside manufacturers' cards. We regret this, but feel that under the present circumstances, it is the only economical course.

About 20 years ago, one of the Museum technicians began to make moulds of certain chosen pieces from the collections and occasionally a new piece was added, usually from a different source. As the years have gone by, the technical quality has remained steady but the artistic quality has deteriorated. (No prototypes were officially approved by the curators and standards were not insisted upon.) We hope that eventually we may make the same arrangements for replicas as for

other reproductions. Meantime, all museum moulds have been returned and a young artist with experience in this field has satisfied the curators with the artistic value of the replicas he has made. He will make a stock of "best sellers" which should satisfy our customers for another year or until other arrangements are made. This field could be expanded particularly with respect to jewellery.

No money has been available for publicity and advertising but our monthly *Preview* has been featuring one particular item or material from a particular country – one month, puppets from Indonesia provided the cover. To support this publicity, we reserve the large case on the left in the shop and/or the wall behind the counter. There has been mention of the Shop in several radio and television broadcasts. During the coming year we hope to encourage school children to visit the Mini Shop. We plan to advertise in the next issue of the *Canadian Collector*. The outside display cases will feature the shop in November and December.

The Planetarium Shop has not maintained its sales record for this year and, unless it can be effectively tied in with the Planetarium shows, it will no doubt suffer. The shop already has the support of the Royal Astronomical Society members and we are trying hard to build it into a Shop for specialists and astronomy enthusiasts.

Some may feel that the figures (a profit of \$1,000) are disappointing, yet they should remember last year's difficulties and the problems of operating any shop 364 days a year, to say nothing of three shops! Nevertheless, as our reputation builds, so will our balance sheet improve.

Mrs. Downie's optimism about and enthusiasm for the stores is unlimited and the progress we have made this year has been very encouraging. With the continuance of the kind of support we have been receiving from so many quarters, we can only look forward to better things.



Members' Committee

Chairman, Mrs. R. D. Hill
Vice-Chairman, Mrs. H. M. Turner, Jr.
Secretary, Mrs. Mary Macdonald
Treasurer, Mrs. M. dePencier
Placement Chairman,
Mrs. Douglas Campbell
Assistant Placement Chairman,
Mrs. Richard Boxer
Committee Membership Chairman,
Mrs. D. P. Robertson
ROM Membership Promotion Chairman,
Mrs. J. G. McClelland
Museum Volunteers Chairman,
Mrs. Donald Currie
ROMarama Chairman, Mrs. John F. Smith
Project Chairman, Mrs. J. E. C. Cole
Touring Chairman, Mrs. William Wigle
Past Chairman, Mrs. R. L. McFeeters
Assistant to ROM Membership Promotion
Chairman, Mrs. Leslie Rebanks
Assistant to Museum Volunteers
Chairman, Mrs. J. D. McKellar

Touring Committee Executive
Chairman, Mrs. William Wigle
Schedule Chairman,
Mrs. Austin S. Thompson
Convention Chairman, Mrs. Eric Taylor
Education Chairman,
Mrs. Douglas C. Watson
Secretary & Publicity Chairman,
Mrs. Adam Zimmerman
Past Chairman,
Mrs. W. James Armstrong

Mrs. R. D. Hill, Chairman, gave the 14th Annual Report of our active, intelligent and imaginative Members' Committee. The Director wishes to express his appreciation to them all for a year of very hard work – and incidentally also for inviting him to address their convivial annual meeting in the Park Plaza Hotel. It hardly seems that five years have passed since he first faced what was then a much smaller, less active group as curious about him as he was bemused by them. He is delighted that during these years they have expanded both in size and breadth of activity. Many have become personal friends and are seen so often in the Museum that they are difficult to distinguish from staff.

As Mrs. Hill remarked, "The opportunity to enrich the mind is one of the rewards of volunteer service in a great cultural institution such as the ROM." The Members have expanded their admirably well-prepared and enthusiastically delivered tours – for the *New Guinea: Big Man Island* show alone they toured a total of 2,575 people – becoming experts in "head-hunting, cannibalism or a natural economy based on the pig." For the Bishop White Memorial Fund they helped Mrs. Stone raise almost \$900. For Jubilee Year they have agreed to tour every week-day. Altogether the total attendance for the tours was only a few hundred short of ten thousand – a tremendous achievement for a group of women who do indeed also have other things to do!

Romarama III was perhaps the most successful evening of all. Held in conjunction with the Flower and Garden Show it attracted about 3,500 visitors to the customary gallery and laboratory parties. The profits from *Romarama II* of the year before helped the Canadiana Department to buy a fine collection from Quebec. We await the Committee's decision as to the application of the profit from *Romarama III* but the

Director hopes that the Committee will spare a little to become a "corporate" member of the Group of One Hundred – adding the *Album of Acquisitions* to the Chairman's "bell" as part of her "Regalia of Office." It is excellent to see that their own finances also are now in such healthy condition.

The Committee was kind enough to take over with enthusiasm the Director's suggestion to hold an out-door show of student's work – called ROM *Art*. This proved so gay and enjoyable an event that it threatens, like *Romarama*, to become an annual event. Such is the price of success! Our thanks also to Mr. V. Biasi whose prizes added a spur. The Committee has always been willing to tackle any task large or small and they assure us that they are prepared for a major effort in Jubilee Year 1972.

The Volunteers have again been active and most useful – especially at the Membership Desk and in selling tickets for many events. They continued their "Meeting and Greeting" of school parties.

It is most unfortunate that in our overcrowded building it is not possible to allocate a proper meeting room for the participating members of the Committee who deserve more than the cubby-hole they now have. We look forward to more expansive days.

In expressing our appreciation to the past Chairman and all the ladies who tour, work conscientiously in Departments or arrange special events, we wish Mrs. H. M. Turner, Jr. a successful year as incoming Chairman. She and her team will not lack for encouragement.

Clarkson, Gordon & Co.

Chartered Accountants

Royal Trust Tower
P.O. Box 251 Toronto-Dominion Centre
Toronto 111, Canada

Halifax Saint John Quebec Montreal Ottawa
Toronto Hamilton Kitchener London Windsor
Thunder Bay Winnipeg Regina Calgary
Edmonton Vancouver Victoria

Arthur Young, Clarkson, Gordon & Co.
United States—Brazil

Telephone 864-1234 (Area Code 416)

Auditors' Report

To the Trustees of The Royal Ontario Museum:

We have examined the balance sheet of The Royal Ontario Museum as at June 30, 1971 and the statements of operating income and expenses, operating reserves and trust accounts for the year then ended. Our examination included a general review of the accounting procedures and such test of accounting records and other supporting evidence as we considered necessary in the circumstances, except as noted in the following paragraph.

Bequests, grants and donations to trust accounts, by their nature, are not susceptible of complete audit verification. Accordingly our verification of receipts from these sources was limited to a comparison of recorded receipts with bank deposits.

In our opinion, subject to the limitation in the scope of our examination referred to in the preceding paragraph, the accompanying financial statements present fairly the financial position of the museum as at June 30, 1971 and the results of its operations for the year then ended in accordance with accounting principles generally accepted for non-profit organizations applied on a basis consistent with that of the preceding year.

Toronto, Canada,
August 23, 1971.

Clarkson, Gordon & Co.

Chartered Accountants

The Royal Ontario Museum

(Incorporated by Special Act of the Ontario Legislature as a corporation without share capital)

Balance Sheet

June 30, 1971

(with comparative figures as at June 30, 1970)

<i>Assets</i>	<i>1971</i>	<i>1970</i>
Current:		
Cash	\$ 93,690	\$ 198,513
Short-term deposits	62,816	181,958
Travel advances	62,104	57,628
Accounts receivable	23,406	17,425
Inventories, at the lower of cost and realizable value	73,223	50,528
	<u>315,239</u>	<u>506,052</u>
Trust assets:		
Short-term deposits	662,184	1,433,042
Marketable securities, at cost (market value — \$1,714,000; 1970 — \$661,000)	1,751,036	768,163
Accrued interest	24,828	33,194
	<u>2,438,048</u>	<u>2,234,399</u>
Fixed, at nominal values:		
Land and buildings	1	1
Contents	1	1
	<u>2</u>	<u>2</u>
	<u>\$2,753,289</u>	<u>\$2,740,453</u>
<i>Liabilities</i>		
Current:		
Accounts payable and accrued liabilities	\$ 134,528	\$ 139,846
Trust liabilities:		
Expendable	645,480	614,373
Non-expendable	1,792,568	1,620,026
	<u>2,438,048</u>	<u>2,234,399</u>
Operating reserves:		
Reserve for restaurant construction		286,449
Reserve for renovations and repairs to service departments	64,115	79,759
Reserve for contingencies	116,598	
	<u>180,713</u>	<u>366,208</u>
	<u>\$2,753,289</u>	<u>\$2,740,453</u>

On behalf of the Board of Trustees:

Trustee R. G. MEECH

Trustee J. E. LANGDON

The Royal Ontario Museum
Statement of Operating Income and Expenses
Year ended June 30, 1971
(with comparative figures for the year ended June 30, 1970)

	1971	1970
Income:		
Grants —		
Province of Ontario	\$3,575,000	\$3,250,000
Boards of Education	86,319	68,927
	<u>3,661,319</u>	<u>3,318,927</u>
Other income —		
Admission fees	207,455	244,284
Tuition fees	26,842	7,758
	<u>234,297</u>	<u>252,042</u>
Service departments:		
Sales	142,307	102,671
Expenses	141,793	132,606
Net profit (loss)	514	(29,935)
	<u>234,811</u>	<u>222,107</u>
Total income	<u>3,896,130</u>	<u>3,541,034</u>
Expenses:		
Academic —		
Curatorial departments	2,111,701	1,896,831
Planetarium	207,155	200,563
Education	127,670	115,207
Library	100,481	84,204
Museology	16,960	3,120
	<u>2,563,967</u>	<u>2,299,925</u>
Administration —		
General	307,445	247,342
Information services	126,408	117,602
	<u>433,853</u>	<u>364,944</u>
Buildings —		
Operation and maintenance	528,449	483,389
Renovations	19,265	95,687
	<u>547,714</u>	<u>579,076</u>
Employee benefits	209,514	208,666
Total expenses	<u>3,755,048</u>	<u>3,452,611</u>
Excess of operating income over expenses for the year	<u>\$ 141,082</u>	<u>\$ 88,423</u>

The Royal Ontario Museum
Statement of Operating Reserves
Year ended June 30, 1971

(with comparative figures for the year ended June 30, 1970)

	1971	1970
<i>Unallocated balance</i>		
Balance, beginning of year		\$173,061
Excess of operating income over expenses for the year	\$141,082	88,423
Amount transferred from reserve for renovations and repairs to service departments (being expenditure charged to operating income)	15,644	24,965
	<u>156,726</u>	<u>286,449</u>
Appropriations:		
Amount transferred to reserve for restaurant construction	40,128	286,449
Amount transferred to reserve for contingencies	116,598	
	<u>Nil</u>	<u>Nil</u>
Balance, end of year	<u>Nil</u>	<u>Nil</u>
<i>Reserve for renovations and repairs to service departments</i>		
Balance, beginning of year	\$ 79,759	\$104,724
Amount transferred to unallocated balance	15,644	24,965
	<u>\$ 64,115</u>	<u>\$ 79,759</u>
<i>Reserve for contingencies</i>		
Amount transferred from unallocated balance	\$116,598	
Balance, end of year	<u>\$116,598</u>	
<i>Reserve for restaurant construction</i>		
Balance, beginning of year	\$286,449	
Amount transferred from unallocated balance	40,128	\$286,449
	<u>326,577</u>	<u>286,449</u>
Construction costs in excess of grants received	326,577	
Balance, end of year	<u>\$ Nil</u>	<u>\$286,449</u>

The Royal Ontario Museum
Statement of Trust Accounts
Year ended June 30, 1971

(with comparative figures for the year ended June 30, 1970)

		1971	1970
<i>Expendable</i>			
Balance, beginning of year		\$ 614,373	\$ 358,516
Bequests, grants and donations		461,072	750,709
Investment income:			
Expendable accounts		64,946	68,274
Non-expendable accounts		105,726	80,136
Funds held in trust for the Museum		16,500	14,000
Annual membership fees		50,740	48,082
Admission fees		48,769	16,293
Other income		95,640	61,141
Reclassified from non-expendable		10,372	42,770
		<u>1,468,138</u>	<u>1,439,921</u>
Disbursements:			
Artifacts	\$341,263		
Equipment	30,848		
Restaurant construction	224,942		
Other	<u>223,707</u>	820,760	822,802
Investment income capitalized — transferred to non-expendable		<u>1,898</u>	<u>2,746</u>
		<u>822,658</u>	<u>825,548</u>
Balance, end of year		<u>\$ 645,480</u>	<u>\$ 614,373</u>
<i>Non-expendable</i>			
Balance, beginning of year		\$1,620,026	\$1,471,014
Adjustment of capital value		45,502	
		<u>1,665,528</u>	<u>1,471,014</u>
Bequests, grants and donations		125,085	173,466
Life membership fees		10,429	15,570
Investment income capitalized		<u>1,898</u>	<u>2,746</u>
		<u>1,802,940</u>	<u>1,662,796</u>
Reclassified as expendable		10,372	42,770
Balance, end of year		<u>\$1,792,568</u>	<u>\$1,620,026</u>

A Bibliography of Royal Ontario Museum Staff Publications from July 1st, 1970 to June 30th, 1971

- Allodi, Mary. "The development of painting in Ontario." (*Canadian Antiques Collector*, vol. 6, no. 5, 1971, pp. 47-52)
- "The Red River artist, Peter Rindisbacher, 1806-1834." (*Rotunda*, Vol. 3, no. 4, Fall, 1970, pp. 30-36)
-
- Baeso, Jean. *The armour court of the Royal Ontario Museum; a general guide*. Toronto: Royal Ontario Museum. 1970. pp. 24.
- "The passing hours: decorative to functional." (*Rotunda*, vol. 3, no. 3, Summer, 1970, pp. 22-32)
- "Portrait medallions and gemstone reproductions." (*Canadian Antiques Collector*, vol. 6, no. 2, pp. 13-15)
- "Victorian furniture." (*Canadian Antiques Collector*, vol. 5, no. 7, pp. 9-13)
- Barlow, J. C. and Dick, J. A. (with Pendergast, E.) "Additional records of birds from British Honduras (Belize)." (*Condor*, vol. 72, no. 3, 1970, pp. 371-372)
- Barlow, J. C. and Power, D. M. "An analysis of character variation in red-eyed and Philadelphia vireos (Aves: Vireonidae) in Canada." (*Canadian Journal of Zoology*, vol. 48, no. 4, 1970, pp. 673-680)
- Barlow, J. C. (with Williams, N.). "Colorimetric analysis of the dorsal plumage of the red-eyed vireo (Aves: Vireonidae) in Canada." (*Canadian Journal of Zoology*, vol. 49, no. 3, 1971, pp. 417-419)
- Barlow, J. C. (with Wauer, R. H.). "The gray vireo (*Vireo vicinior* Coues: Aves: Vireonidae) wintering in the Big Bend region, West Texas." (*Canadian Journal of Zoology*, vol. 49, no. 6, 1971, pp. 953-956)
- Barlow, J. C. (with Williams, N.). "The Hutton vireo (*Vireo huttoni stephensi* Brewster) in the Bradshaw Mountains, Arizona." (*Canadian Journal of Zoology*, vol. 48, no. 6, 1970, pp. 1447-1448)
- Barlow, J. C. (with Johnson, R. R.). "Notes on the nesting of the Black-bellied Tree Duck near Phoenix, Arizona." (*Southwestern Naturalist*, vol. 15, no. 3, 1971, pp. 394-395)
- Barr, David. "At home, in the city." (*Ontario Naturalist*, vol. 9, no. 1, 1971, pp. 22-26)
- "A comparative study of the ejaculatory complex in water mites (Acari: Parasitengotana): Morphology and potential value for systematics." (*Dissertation Abstracts*, vol. 31, no. 1, 1970, p. 443-B)
- "Crayfish hunt." (*Rotunda*, vol. 3, no. 3, Summer, 1970, pp. 14-21)
- "Snow fleas." (*The Young Naturalist*, vol. 13, no. 1, 1971, p. 8)
- "A swimming beetle." (*The Young Naturalist*, vol. 12, no. 7, 1970, pp. 1-2)
- Blaek, Mary. "Legends and accounts of Weagamow Lake." (*Rotunda*, vol. 3, no. 3, Summer, 1970, pp. 4-13)
- Brinckmann-Voss, Anita. *Anthomedusae/ Athecatae (Hydrozoa, Cnidaria) of the Mediterranean; part 1, Capitata: Fauna and flora del Golfo di Napoli*. Monografia 39. 1970. Pp. 96.
- Buersehaper, Peter. "The frozen pereh." (*The Young Naturalist*, vol. 13, no. 1, 1971, p. 4)
- Burnham, H. B. "'Keep me warm one night'; an overshoot pattern from Cape Breton." (*Guild of Canadian Weavers*, vol. 14, no. 1, 1971, pp. 1-7)
- "Ontario - the textile arts." (*Canadian Antiques Collector*, vol. 6, no. 5, 1971, pp. 65-67)
- "The Royal Ontario Museum and the Department of Textiles." (*Lyons. Centre International d'Etude des Textiles Anciens. Bulletin de liaison*, no. 31, 1970, pp. 13-20)
-
- Churcher, C. S. "Two new Upper Miocene Giraffids from Fort Ternan, Kenya, East Africa: *Palaeotragus primaevus* n. sp. and *Samotherium africanum* n. sp.;" in *Fossil vertebrates of Africa*, ed. by L. S. B. Leakey and R. J. G. Savage, vol. 2, pp. 1-105. London: Academic Press. 1970.
- Collins, D. H. "The microstructure and function of the connecting ring of Nautilus, Spirula and fossil nautiloids." (*Abstracts with Programs*, vol. 2, no. 7, 1970, p. 524)
- Crossman, E. J. "The Canadian freshwater fish fauna." (*Bratislava. Slovenske Narodne Muzeum. Acta rerum naturalium*, vol. 15, no. 2, 1969, pp. 137-152)
- "Pike, related forms and history;" in *Pike*, by F. Buller. London, McDonald & Co. Ltd. 1971.
- "Pleistocene pike, *Esox lucius*, and *Esox* sp. from the Yukon territory and Ontario." (*Canadian Journal of Earth Sciences*, vol. 7, no. 4, 1970, pp. 1130-1138)
- Cselenyi, L. "Predecessors of the piano-forte." (*Toronto Symphony News*, January, 1971, pp. 2-9)
-
- Dewdney, Selwyn. *Dating rock art in the Canadian Shield region*. Toronto: Royal Ontario Museum. 1970. Pp. 71. (Art and Archaeology Occasional Papers, no. 24)
- "Ecological note on the Ojibway Shaman-artist." (*Arts Canada*, vol. 27, no. 4, 1970, pp. 17-28)
- Dohrenwend, D. Review, *Oriental Art*, New series, vol. XVII, no. 1, 1971, pp. 70-71.
-
- Edmund, G. A. and Hoffstetter, R. "Essonodontherium gervaisi es un sinonimo de megatherium americanum euvier (Xenarthra, Mammalia)". (*Ameghiniana*, tomo 7, no. 4, 1970, pp. 317-328).
- Emery, A. R. "Sublimnos; researchers go underwater at Tobermory." (*Rotunda*, vol. 4, no. 2, Spring, 1971, pp. 20-27)
-
- Fenton, M. B. "The deciduous dentition and its replacement in *Myotis lucifugus* (Chiroptera: Vespertilionidae)." (*Canadian Journal of Zoology*, vol. 48, no. 4, 1970, pp. 817-820)
- "Population studies of *Myotis lucifugus* (Chiroptera: Vespertilionidae) in Ontario. Toronto. Royal Ontario Museum. 1970. Pp. 34. (Life Sciences Contributions, no. 77)

- "A technique for monitoring bat activity, with results obtained from different environments in southern Ontario." (*Canadian Journal of Zoology*, vol. 48, no. 4, 1970, pp. 847-851)
- "Tropical bats; collecting in Guyana." (*Rotunda*, vol. 4, no. 2, Spring, 1971, pp. 28-36)
- Fritz, M. A. *The Trepomatous Bryozoan stigmatella catenulata diversa Parks and Dyer* (1922), a synonym for *Mesotrypa diversa* (Parks and Dyer). Toronto: Royal Ontario Museum. 1971. Pp. 8. (Life Sciences Occasional Papers, no. 18)
- William Arthur Parks, Ph.D., LL.D., F.R.S., 1868-1936. Toronto: Royal Ontario Museum. 1971. Pp. 18. (Life Sciences Miscellaneous Publications)
- Fuchs, Helmuth. "Frogkind and mankind." (*Rotunda*, vol. 3, no. 4, Fall, 1970, pp. 23-29)
- "Identification?" (*Rotunda*, vol. 4, no. 2, Spring, 1971, pp. 13-19)
- Geraghty, Paul. "Dinosaurs of Canada, Ornithopods (Sauropods)." (*The Young Naturalist*, vol. 13, no. 2, 1971, pp. 3-4)
- Golombek, Lisa. "The chronology of Turbat-i Shaikh Jam." (*Iran*, vol. ix, 1971, pp. 27-44)
- Review, *Journal of the American Oriental Society*, vol. xc, no. 2, 1970, pp. 290-292.
- Hayes, J. W. "Comments on post-Roman imports;" in *Cadbury Congresbury, Somerset, 1968: an introductory report*, by P. J. Fowler, K. S. Gardner and P. A. Rahtz, pp. 30-37. Bristol: Dept. of Extra-Mural Studies, University of Bristol. 1970.
- Hickl-Szabó, Heribert. "On the nature of gifts: three aspects . . . in European culture." (*Arts Canada*, vol. 27, no. 6, 1971, pp. 27-31)
- "St. Catherine of Alexandria: memorial to Gerard Brett." (*Rotunda*, vol. 3, no. 3, Summer, 1970, pp. 36-37)
- Hsü, Chin-hsiung. "Chien chieh huang chia An-ta-liao po wu kuan ts'ang chia ku wen tzu." (An introduction to the oracle bone inscriptions in the Royal Ontario Museum) (*Shu mu chi k'an* [Bibliographical Quarterly], vol. 5, no. 2, 1971)
- "Tsan tso te hsi kuan yü shih tai." (Importance of the chiselled hollows in the classification of oracle bones into periods) (*Chung-kuo wen tzu*, no. 37, 1970. Pp. 26)
- "Yin putz'u chung mu chung chi szu yen chiu te hsin kuan mien." (A new idea for the study of the five rituals in oracle bone inscriptions) (*Chung-kuo wen tzu*, no. 3, 1970. Pp. 13)
- Ignatieff, H. "Ontario silversmiths." (*Canadian Antiques Collector*, vol. 6, no. 5, 1971, pp. 59-61)
- James, R. D. and Barlow, J. C. "Barnswallow from Cornwallis Island, N.W.T." (*Canadian Field-Naturalist*, vol. 84, no. 2, 1970, p. 181)
- Keeble, K. C. "Small bronzes of the Renaissance." (*Rotunda*, vol. 4, no. 2, Spring, 1971, pp. 5-12)
- Kenyon, W. A. "The Armstrong Mound on Rainy River, Ontario;" in *Canadian Historic Sites*, pp. 66-84. Ottawa: Dept. of Indian Affairs and Northern Development. National Historic Sites Service. 1970. (Occasional Papers in Archaeology, no. 3)
- King, H. C. *The Christmas star*. Toronto: Royal Ontario Museum. 1970. Pp. 8.
- From here to infinity*. Toronto: Royal Ontario Museum. 1970. Pp. 16.
- The planet Venus*. Toronto: Royal Ontario Museum. 1970. Pp. 16.
- Leipen, Neda. *Athena Parthenos: a reconstruction*. Toronto: Royal Ontario Museum. 1971. Pp. xiii, 95.
- Long, R. C. "An annotated list of the birds of Pickering Beach - part 6." (*Ontario Field Biologist*, no. 24, 1970, pp. 19-22)
- Mandarino, J. A. "Memorial to Dr. V. B. Meen." (*Mineralogical Record*, vol. 2, no. 1, 1971, p. 9)
- "Memorial to Max Hans Froberg." (*Canadian Mineralogist*, vol. 10, 1971, pp. 751-754)
- Mandarino, J. A. and Gait, R. I. "Molybdenite polytypes in the Royal Ontario Museum." (*Canadian Mineralogist*, vol. 10, 1970, pp. 723-729)
- Mandarino, J. A. and Gait, R. I. "Polytypes of tungstenite." (*Canadian Mineralogist*, vol. 10, 1970, pp. 729-731)
- McAndrews, J. H. Review, *Ecology*, vol. 51, no. 6, 1970, pp. 1111-1112.
- Meen, V. B. "Lapis in the midnight sun." (*Rotunda*, vol. 4, no. 1, Winter 1971, pp. 36-44)
- "The larger gems of the Crown Jewels of Iran;" in *The complete guide to rocks, gems and minerals*, ed. by H. Tanner, pp. 57-63. Los Angeles, Calif.: Petersen Pub. Co. 1970.
- Millet, N. B. "The Gebel Adda project, Nubia, 1962;" in *National Geographic Research Reports: 1961-1962 Projects*, pp. 191-200. Washington, D. C.: National Geographic Society. 1970.
- "A site tour in the northern Sudan." (*Royal Ontario Museum Archaeological Newsletter*, New series, no. 71, 1971)
- Nelson, D. A. *Virginquest '70; the shipwrecks of Anegada*. Toronto: Royal Ontario Museum. 1971. Pp. 128.
- Norris, G. and McAndrews, J. H. "Dinoflagellate cysts from post-glacial lake muds, Minnesota (U.S.A.)." (*Review of Palaeobotany and Palynology*, vol. 10, no. 2, 1970, pp. 131-156)
- Odum, Anker. "Case of the caddies." (*Ontario Naturalist*, vol. 8, no. 3, 1970, pp. 4-7)
- "The magnificent Mud-Dauber." (*Canadian Audubon*, vol. 32, no. 4, 1970, pp. 124-126)
- "Some of my best friends are wasps." (*The Young Naturalist*, vol. 13, no. 5, 1971, pp. 4-5)

- Peck, G. K. and Geraghty, Paul. "Beyond the trees in Ontario's arctic." (*Ontario Naturalist*, vol. 9, no. 1, 1971, pp. 4-11)
- Pendergast, D. M. *Excavations at Eduardo Quiroz Cave, British Honduras (Belize)*. Toronto: Royal Ontario Museum. 1971. Pp. 123. (Art and Archaeology Division. Occasional Papers, no. 21)
- "People on pots; an ancient Maya gallery." (*Rotunda*, vol. 4, no. 1, Winter, 1971, pp. 26-36)
- Peterson, R. L. "The African molossid bat *Tadarida russata*." (*Canadian Journal of Zoology*, vol. 49, no. 3, 1971, pp. 297-301)
- "Another Red Bat, *Lasiurus borealis*, taken aboard ship off the coast of Nova Scotia." (*Canadian Field-Naturalist*, vol. 84, no. 4, 1970, p. 401)
- Peterson, R. L. and Fenton, M.B. "*Variation in the bats of the genus Harpyionycteris, with the description of a new race.*" Toronto: Royal Ontario Museum. 1970. Pp. 15. (Life Sciences Occasional Papers, no. 17)
- Power, D. M. "Evolution of the house finch on Santa Cruz Island, California." (*Canadian Journal of Zoology*, vol. 49, no. 5, 1971, pp. 675-684)
- "Geographic variation in the surface/volume ratio of the bill of red-winged blackbirds in relation to certain geographic and climatic factors." (*Condor*, vol. 72, no. 3, 1970, pp. 299-304)
- "Range expansion of Brewer's blackbird: phenetics of a new population." (*Canadian Journal of Zoology*, vol. 49, no. 2, 1971, pp. 175-183)
- "Statistical analysis of character correlations in Brewer's blackbirds." (*Systematic Zoology*, vol. 20, no. 2, 1971, pp. 186-203)
- Review, *Systematic Zoology*, vol. 19, no. 4, 1970, pp. 391-393.
- Pryor, Francis. "Later Anglo-Saxon Pottery." (*Canadian Antiques Collector*, vol. 6, no. 4, 1971, pp. 16-18)
- Riotte, J. C. E. "Butterflies and skippers of northern Ontario." (*Mid-Continent Lepidoptera Series*, vol. 2, no. 21, 1971, pp. 1-20)
- "Checklist of Ontario skippers and butterflies." (*Toronto Entomologists' Association. Occasional Publication*, no. 1, 1970) Pp. 4.
- "A contribution to the knowledge of *Hyalophora* (*Hyalophora*) *Columbia* (Lep.: Saturniidae)." (*Toronto Entomologists' Association. Occasional Publications*, no. 2, 1970) Pp. 5.
- "Crambidia pura (Artiidae: Lithosiinae) new for Canada." (*Journal of the Lepidopterists' Society*, vol. 23, no. 3, 1970, p. 227)
- "Eine neue Saturniiden-Unterart: *Anisota* (*Anisota*) *virginiensis sinulis* n. subsp. (Lep.)." (*Entomologische Zeitschrift*, 80 Jhrg., no. 11, 1970, pp. 89-100)
- Rising, J. D. "Morphological variation and evolution in some North American orioles." (*Systematic Zoology*, vol. 19, no. 4, 1970, pp. 315-351)
- Rogers, E. S. *Algonkians of the eastern woodlands*. Toronto: Royal Ontario Museum. 1970. Pp. 16.
- The Indians of Canada; a survey*. Toronto: Royal Ontario Museum. 1970. Pp. 20.
- Indians of the Plains*. Toronto: Royal Ontario Museum. 1970. Pp. 16.
- Indians of the subarctic*. Toronto: Royal Ontario Museum. 1970. Pp. 16.
- Iroquoians of the eastern woodlands*. Toronto: Royal Ontario Museum. 1970. Pp. 16.
- New Guinea: Big Man island*. Toronto: Royal Ontario Museum. 1970. Pp. 251.
- "New Guinea: Big Man island." (*Rotunda*, vol. 3, no. 4, Fall, 1970, pp. 4-13)
- "On the nature of gifts . . . in north Pacific coast culture." (*Arts Canada*, vol. 27, no. 6, 1971, p. 35)
- Rogers, E. S. (with Updike, Lee) "Indian tribes: Mistassini-Cree." (*The Beaver*, outfit 301, Summer, 1970, pp. 22-25)
- Rogers, E. S. (with Updike, Lee) "Indian tribes: the Chipewyan." (*The Beaver*, outfit 301, Winter, 1970, pp. 57-59)
- Rogers, E. S. (with Updike, Lee) "Indian tribes: the Iroquois." (*The Beaver*, outfit 301, Spring, 1971, pp. 46-49)
- Russell, L. S. "Correlation of the Upper Cretaceous Montana Group between southern Alberta and Montana." (*Canadian Journal of Earth Sciences*, vol. 7, no. 4, 1970, pp. 1099-1108)
- "Those remarkable dinosaurs." (*Rotunda*, vol. 4, no. 1, Winter, 1971, pp. 4-17)
- Savage, H. G. "Faunal analysis of the Inverhuron, Robitaille, Maurice and Thede sites;" in *Palaeoecology and Ontario prehistory*, ed. by W. M. Hurley and C. E. Heidenreich, pp. 7-85; p. 94; pp. 166-172; pp. 173-178. Toronto: Dept. of Anthropology, University of Toronto. 1971. (Toronto. University. Dept. of Anthropology. Research Report, no. 2)
- "Faunal material;" in *Excavations at Eduardo Quiroz Cave, British Honduras (Belize)*, by D. M. Pendergast, pp. 78-111. Toronto: Royal Ontario Museum. 1971. (Art and Archaeology Occasional Papers, no. 21)
- "Palaeoecology and osteology." (*Medical Graduate*, vol. 7, no. 2, 1971, pp. 2-4)
- Scott, W. B. Review, *Canadian Field-Naturalist*, vol. 85, no. 1, 1971, pp. 84-85.
- Scott, W. B. (with Bailey, R. M. et al.) "A list of common and scientific names of fishes from the United States and Canada." (*American Fisheries Society. Special Publication*, no. 6, 1970, pp. 1-149)
- Shih, Hsio-Yen. "On the nature of gifts . . . in Chinese culture." (*Arts Canada*, vol. 27, no. 6, 1971, pp. 32-34)
- Shortt, T. M. "James L. Baillie: 1904-1970." (*Rotunda*, vol. 3, no. 3, Summer, 1970, pp. 38-39)
- Stephen, B. "Wheels for the dragon." (*Rotunda*, vol. 3, no. 4, Fall, 1970, pp. 14-20)
- Storer, J. E. "New rodents and lagomorphs from the Upper Miocene Wood Mountain formation of southern Saskatchewan." (*Canadian Journal of Earth Sciences*, vol. 7, no. 4, 1970, pp. 1125-1129)

- Swann, P. C. "The Director preserved?" (*Museologist*, no. 117, December 1970, pp. 4-11)
- "The role of the Trustee in the seventies;" in *Readings on the governing boards of arts organizations*, pp. 20-31. Ottawa: Canada Council Information Services. 1971.
- "On relevance to social change." Toronto. 1971. Pp. 12. Mimeograph.
-
- Tamsitt, J. R. and Valdivieso, D. "Los murcielagos y la salud publica. Estudio con especial referencia a Puerto Rico." (*Boletin de la Oficina Sanitaria Pan-americana*, vol. 69, 1970, pp. 122-140)
- Tamsitt, J. R. and Valdivieso, D. "Observations on bats and their ectoparasites;" in *A tropical rain forest*, by H. T. Odum, pp. 123-140. Washington, D.C.: U.S. Atomic Energy Commission. 1970.
- Tamsitt, J. R. (with Fox, I.) "Record of bat ectoparasites from the Caribbean region (Siphonaptera, Aearina, Diptera)." (*Canadian Journal of Zoology*, vol. 48, no. 5, 1970, pp. 1093-1097)
- Taylor, Garth. *The Canadian Eskimos*. Toronto: Royal Ontario Museum. 1970. Pp. 16.
- "Structure of early contact Labrador Eskimo social units." (*Verhandlungen des XXXVIII Internationalen Amerikanisten-Kongresses*, Stuttgart-München, Bd. II, 1968, pp. 251-254)
- "William Turner's journeys to the Caribou country with the Labrador Eskimos in 1780." (*Ethnohistory*, vol. 16, no. 2, 1969, pp. 141-164)
- Tovell, W. M. "How the esearpment was made; a 400 million year old story." (*Watersheds*, vol. 5, nos. 1-2, 1970, p. 16)
- (Ed.) *Claremont seminar on conservation education*. Ontario Department of Energy and Resources Management, Conservation Branch, and Metropolitan Toronto and Region Conservation Authority. 1970. Pp. 120.
- Tushingham, A. D. "A Royal Israelite Seal (?) and the Royal jar handle stamps." (*Bulletin of the American Schools of Oriental Research*, vol. 200, 1970, pp. 71-78; vol. 201, 1971, pp. 23-25)
-
- Valdivieso, D. and Tamsitt, J. R. "Hematological data from tropical American bats." (*Canadian Journal of Zoology*, vol. 49, no. 1, 1970, pp. 31-36)
- Valdivieso, D. and Tamsitt, J. R. "A review of the immunology of parasitic nematodes." (*Revista de Biologia Tropical*, vol. 17, 1970, pp. 1-25)
- Vastokas, Joan. "Art of New Guinea;" in *New Guinea: Big Man island*, by E. S. Rogers, pp. 230-239. Toronto: Royal Ontario Museum. 1970.
- Von Bitter, P. H. (with Moreney, M. and Edmond, P. L.). "Dating eonodonts using electron spin resonance: a possible technique." (*State geological survey of Kansas, Bulletin* 199, pt. 1, 1970, pp. 17-19)
-
- Webster, D. B. "Ontario earthen pottery." (*Canadian Antiques Collector*, vol. 6, no. 5, 1971, pp. 56-58)
- "Victorian furniture in Canada." (*Canadian Antiques Collector*, vol. 5, no. 10, 1970, pp. 9-12)
- Westermann, G. E. G. *Form, structure and function of shell and siphuncle in coiled mesozoic ammonoids*. Toronto: Royal Ontario Museum. 1971. Pp. 39. (Life Sciences Contributions, no. 78)
- Westermann, G. E. G. (with Rieeardi, A. C.) "The Valanginian Dobrodgeiceras Nikolov [Ammonitina] from Peru." (*Journal of Paleontology*, vol. 44, no. 5, 1970, pp. 888-892)
- Wieks, F. J. (with Whittaker, E. J. W.) "Chemical differences among the serpentine 'polymorphs': a discussion." (*American Mineralogist*, vol. 55, 1970, pp. 1025-1047)
- Wiggins, G. B. "In memoriam. Edmund Murton Walker, 1877-1969." (*Proceedings of the Entomological Society of Ontario*, vol. 100, 1969, pp. 244-246)
- Wood, Kathleen. "An Indian welcome to a Princee." (*Canadian Antiques Collector*, vol. 6, no. 4, 1971, pp. 13-15)
-
- Zurbrigg, R. E. "The ocean - a limitless resource?" (*Canadian Audubon*, vol. 33, no. 1, 1971, pp. 14-16)
-

Design: Seott Thornley
Information Services, ROM

Photography: Leighton Warren
Chief Photographer, ROM and
Arthur Williams, ROM

Cover photo: Leighton Warren

Printed by Hunter Rose Company

© The Royal Ontario Museum, 1971

